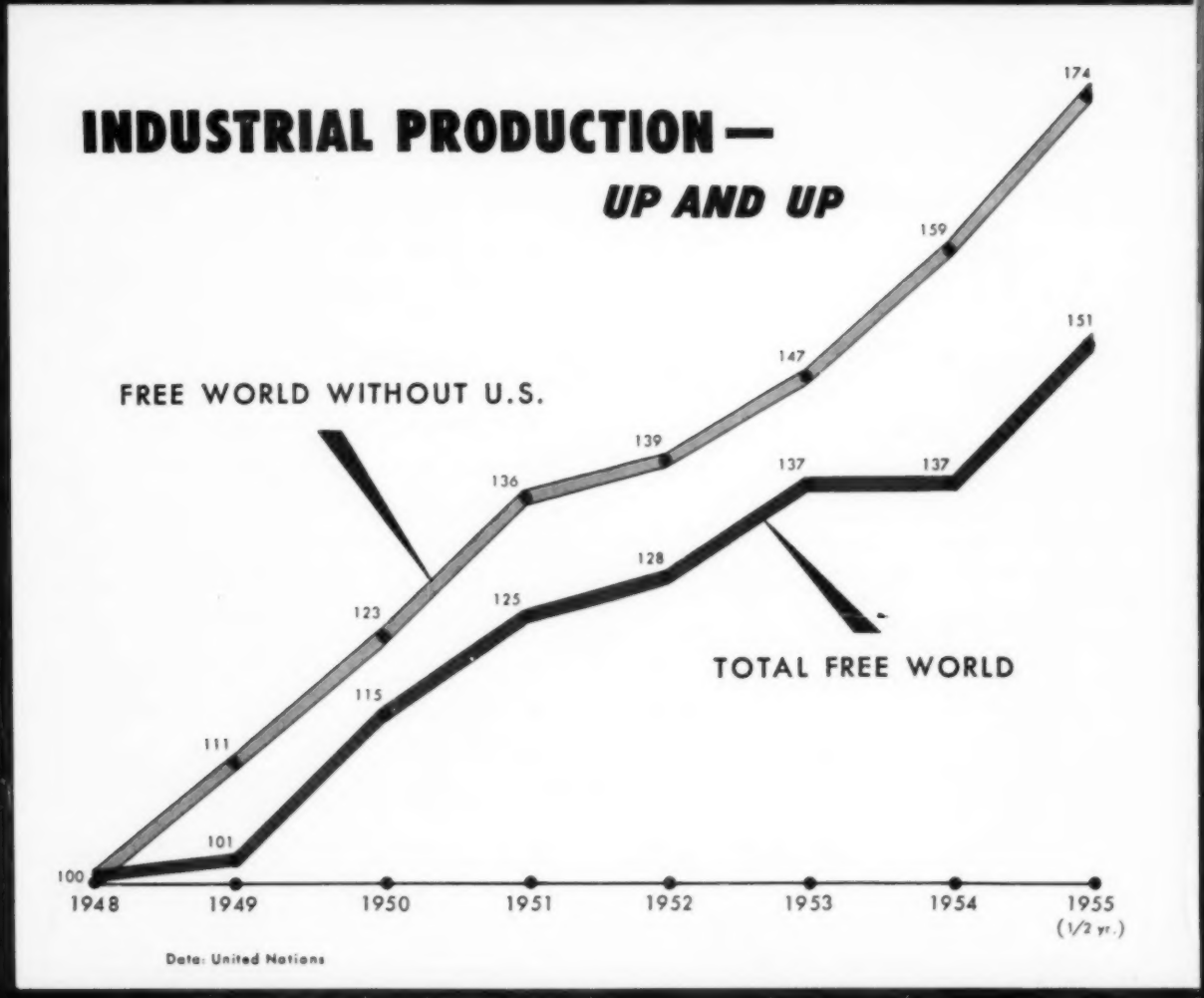
McGRAW-HILL INTERNATIONAL

# Management Digest

TECHNICAL • INDUSTRIAL • COMMERCIAL




Figures Like These Can Guide Your Decisions

# DoALL CLAW TOOTH

## A Bear for Action!

**FASTEST CUTTING, LONGEST LASTING SAW BAND YOU CAN BUY**

The
ORIGINAL
Positive Rake, Hooked Tooth Saw Band—
For Ferrous and Non-Ferrous Metals, Woods and Plastics
¼" to 1" width
2, 3, 4 and 6-pitch

Send for New Booklet—
"DoALL 6-Point Sawing-Savings Program"

DoALL *Claw-Tooth* is the fastest cutting, longest lasting, most versatile type of saw band ever developed. Its claw-like teeth pull themselves into the work. It makes clean smooth chips with less feed pressure. Teeth stay sharper longer.

To cut your sawing costs, use Claw-Tooth *wherever* you are sawing thicknesses of 1" or greater.

Buy Claw-Tooth in cut and welded lengths to fit your machine, or in 100′ or 500′ coils. Call your local DoALL Store or get literature from:

**THE DoALL COMPANY, DES PLAINES, ILLINOIS, U.S.A.**

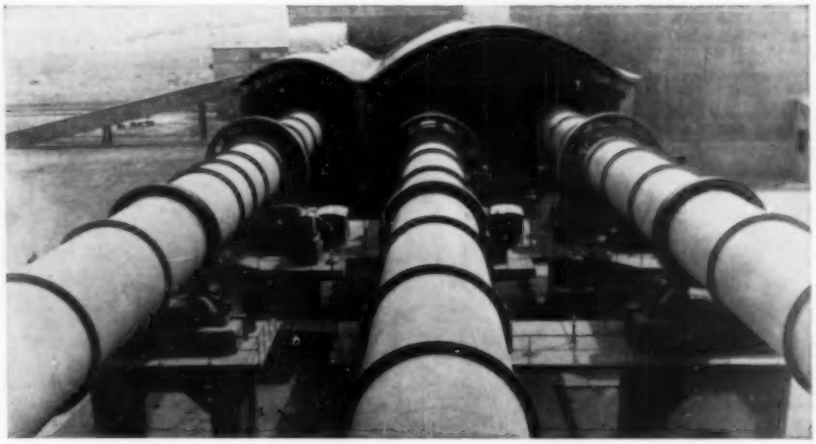
**DoALL**

*Agents in principal cities around the world.*

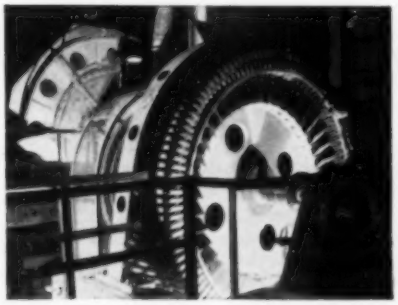
58-330

# Efficient cement-making accelerates industrial progress

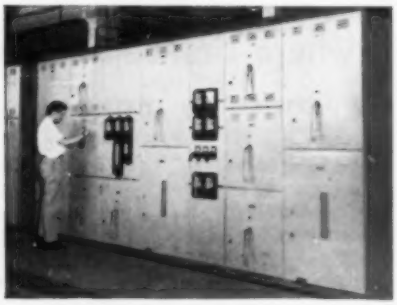
In addition to the equipment shown here, Allis-Chalmers builds crushers, grinding mills, screens and electrical equipment for cement-makers. In fact, Allis-Chalmers builds machinery that helps all industries improve processing of raw materials . . . builds equipment which provides the power to help people everywhere produce more, have more—live better.



**INCREASED PRODUCTION** made possible by modern cement plants equipped with Allis-Chalmers Rotary Kilns—means more cement to build modern cities . . . more cement for the facilities to link these cities—highways, airports, docks.



**LOWERS COST**—this thousand-horsepower motor is only one of the many Allis-Chalmers motors used for economical cement making. It helps make best possible use of available power . . . helps produce more cement at lower over-all cost per ton.



**IMPROVES QUALITY**—with each cement-making function regulated by Allis-Chalmers switchgear, processing is precisely controlled. The result is a product of more uniform quality.

**ALLIS-CHALMERS**

**BASIC MACHINERY FOR THE WORLD'S MAJOR INDUSTRIES**

**ALLIS-CHALMERS DISTRIBUTORS ARE LOCATED THROUGHOUT THE WORLD**

The Allis-Chalmers distributor in your country is ready to give you as much help as you *want or need*. He is backed by complete Allis-Chalmers engineering, research and testing facilities. These services are readily available to you, your staff and your consulting engineers to determine the most profitable means of operation and to help you select the most efficient equipment that exactly meets your needs.

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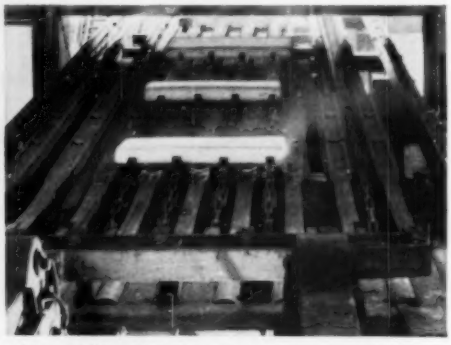
MANUFACTURING COMPANY
Export Department,
Milwaukee 1, Wisconsin, U.S.A.
Factories in U.S.A., England and Canada

C-5722G

Downtilter at Link-Belt-equipped steel mill automatically transfers coils from pallet conveyor to unique transfer car having retractable carrying rollers. Then coils are gently lowered to a V-top banding conveyor.

Ore, sinter, pellets or limestone are carried to storage area and are individually stacked by this 1900-ft. Link-Belt distributing belt conveyor equipped with traveling tripper-stacker having a 40-ft. boom.



Dependable Link-Belt chain conveyor with pusher attachments transfers white hot steel billets up incline to further processing.

# Yield goes up, waste down

## in steel mills where Link-Belt conveyors and drives boost capacity, conserve manpower, improve safety

THE growth of the nation's steel output in the last few decades is far in excess of the expansion in mill facilities. To a large extent, this has been achieved by increased handling capacities in every phase of steel production. And in almost any mill you visit, you'll see Link-Belt conveyors and drives at work . . . providing top efficiencies from raw materials to finished products with minimum space and cost requirements. Safety is improved too—confusing cross traffic eliminated, and workers can be kept clear of hazardous locations.

In typical modern mills, slabs, billets, plates and tubes travel on chain conveyors. You'll find skelp moving to reels on Link-Belt apron conveyors . . . scrap on car-type conveyors . . . rod coils carried by overhead conveyors. Other Link-Belt equipment handles coils of sheet steel—turns, weighs, raises or lowers them gently . . . down-tilts or up-ends them as though they were spools of thread.

Link-Belt engineers will work with your own engineers, consultants and builders of mill and process equipment. Together, they can give you a system built to your exact requirements. In fact, it will pay you to contact your Link-Belt representative for any industrial conveying need. Or write LINK-BELT COMPANY, Dept. MD, 2680 Woolworth Bldg., New York 7, N. Y.

13,087-E

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*One source . . . one responsibility*

for materials handling · power transmission · processing machinery

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# Bundy-engineered design gives customer better function with lower part cost

**Here's another example showing how expert Bundy engineers can help with *your* design problem**

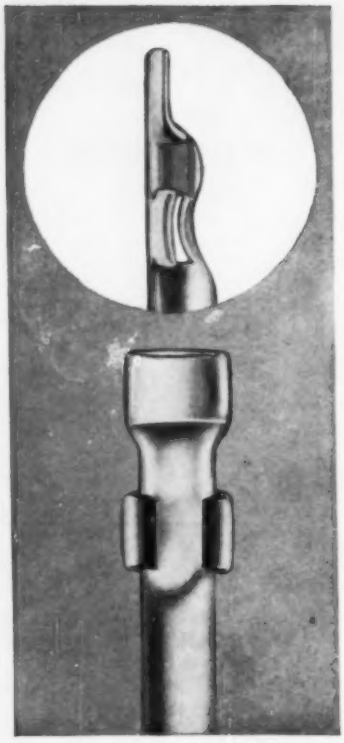
**Product designers** the world over bring their tubing problems to Bundy. Here's why: Bundy is a prime source for sound information and ideas – not only on gasoline vent tubes, but on any other tubing application.

Shown at right is an example of the help you get when you present your tubing problems to Bundy. When you call on Bundy's staff of engineers at the design stage of your product, you can be sure we'll come up with a practical, workable solution to your problem.

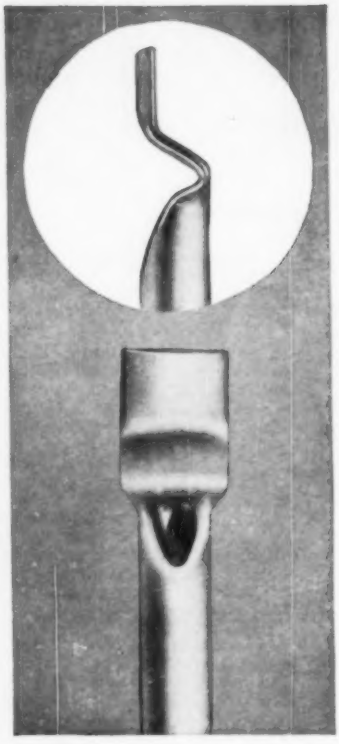
**Get to know** the quality of Bundyweld Tubing. Bundyweld is the only tubing that is double-walled from a single metal strip, copper-bonded throughout 360° of wall contact. It is strong, lightweight; has high tensile and fatigue strength. It is leakproof, and has high thermal conductivity. The standard of the refrigeration industry, Bundyweld is *used in 95% of today's cars, in an average of 20 applications each!*

The assistance we have given others, we can give you. Call, wire, or write Bundy, today!

**BUNDY TUBING COMPANY**
**DETROIT 14, MICHIGAN**

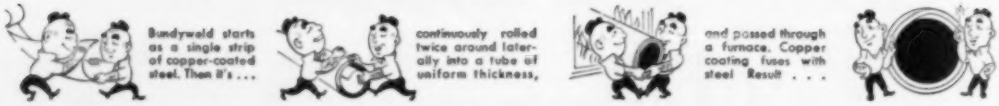


**Problem:** Customer submitted specification for vent tube, as shown above, for use inside gasoline filler tube. Problem was to remove the possibility of gasoline entering two side vents as gas tank was filled. The Bundy engineers showed customer the way to big fabrication savings.



**Solution:** Improved design suggested by Bundy engineers completely protects vent from gasoline entry by baffle deflection. Moreover, this part requires just two simple operations: one to flatten end and pierce tube simultaneously, the other to put a double bend in flattened end.

## WHY BUNDYWELD IS BETTER TUBING


Bundyweld starts as a single strip of copper-coated steel. Then it's . . .
continuously rolled twice around laterally into a tube of uniform thickness,
and passed through a furnace. Copper coating fuses with steel Result . . .
Bundyweld, double-walled and brazed through 360° of wall contact.

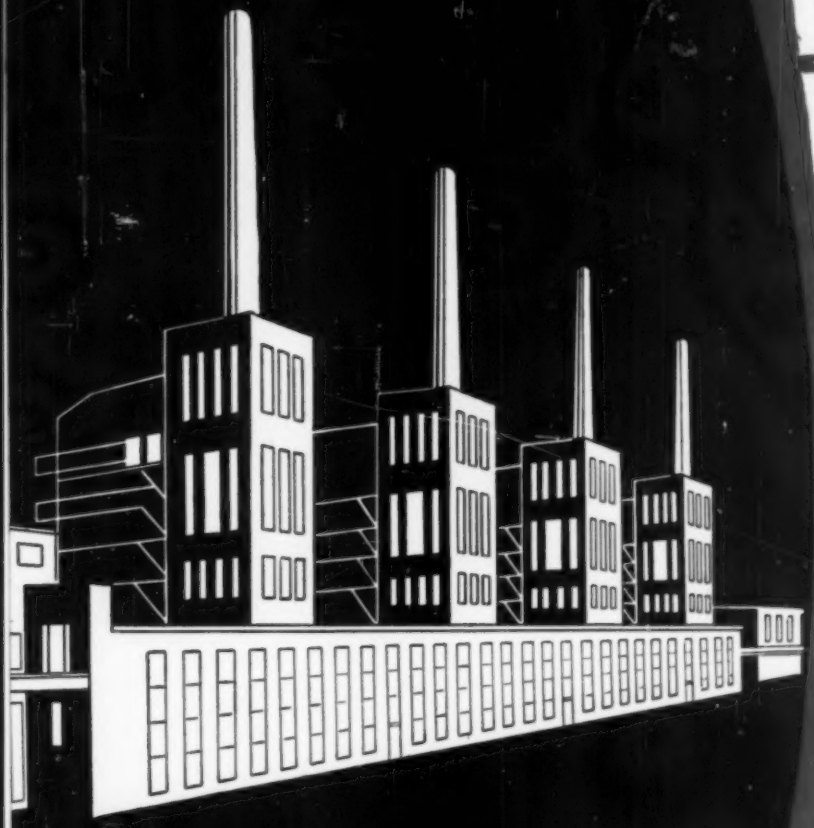
# BUNDYWELD TUBING®

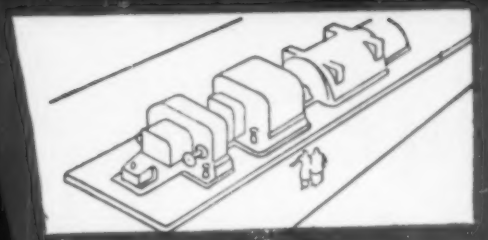
**DOUBLE-WALLED FROM A SINGLE STRIP**

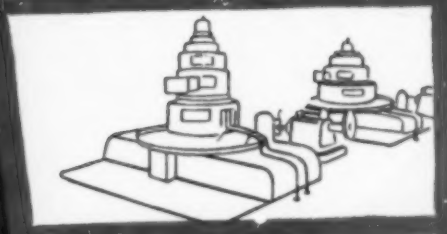
- Sizes up to 5/8" O.D.
- Leakproof
- High thermal conductivity
- High bursting point
- High endurance limit
- Extra-strong
- Ductile
- Lightweight
- Machines easily
- Takes plastic coating
- Takes plating
- Shock-resistant
- No inside bead
- Uniform I.D., O.D.

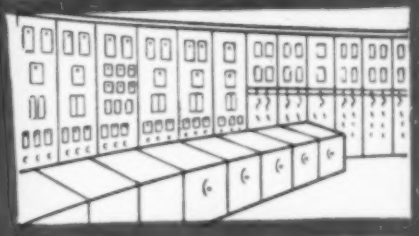
# AEG

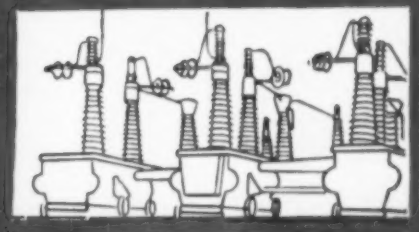
## ELECTRICAL ENGINEERING

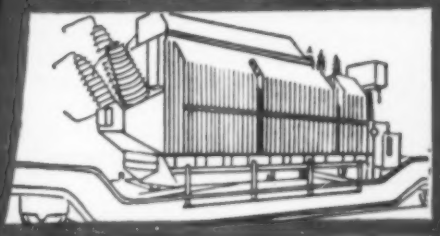


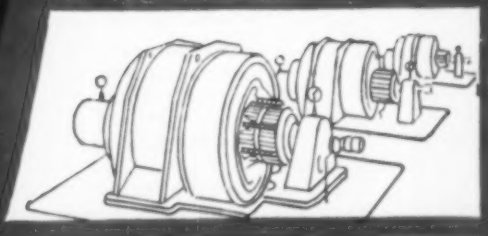


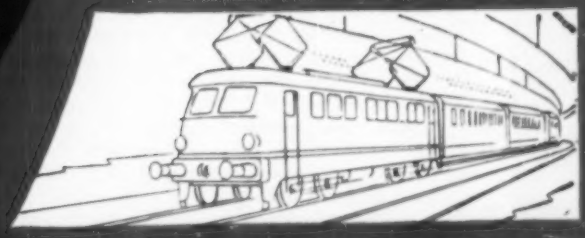












The World's electric power consumption continues to double every six or seven years and the World's industries largely depend upon electrical resources to sustain their constant growth.

For very many years the AEG has excelled in the planning and construction of large-size electrical installations as is evidenced by the numerous generating stations up to the highest capacities, transmission and distribution systems, for traffic and industries in almost every quarter of the World.

Avail yourself also of the capacity and experience at the disposal of the AEG.

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**MEANS**
**ELECTRICITY**

**ALLGEMEINE ELEKTRICITÄTS-GESELLSCHAFT**

Berlin (Brit. Sector) Export Department Frankfurt (Main)

Although greater sales increased paper work, Fonnesbech cut office costs and speeded customer service.

# Department store cuts price of figurework!

Progressive merchandising policies swiftly increased the business of A. Fonnesbech A/S, leading Danish specialty store for ladies' and girls' wear. This put a heavy load on the business office.

The controller called in the Burroughs man, a highly trained consultant on modern business methods. His recommendation: replace the two bookkeeping machines then in use on customers' accounts with a Sensimatic accounting machine.

***Results.*** The controller reports: "Because the monthly bills now get out quicker, payments are received earlier. The proof of the work is simplified, since it is very easy to localize an error. The Sensimatic is saving us money and has made possible better service to our customers.

"We ordered another Sensimatic and changed over our suppliers' and merchandising accounts with equally good results."

***Can your business profit from faster facts?*** Your local Burroughs man is fully trained to advise you on modern business machine methods. He will show how you can speed up figurework and cut office costs. For his address, write Burroughs, Detroit 32, Michigan, U.S.A.

Photo, Poul Bloch

***"Our Sensimatic has paid for itself,"*** says Mr. C. Fonnesbech, as he observes the fast, accurate work of Miss I. Mikkelsen.

**Call in your local Burroughs man**

# ▶ WORLD TRENDS

## EUROPE . . .

**Commercial development of atomic energy** some day may be handled as a "community" project in Western Europe. An international authority, such as the Coal and Steel Community, is the hope of Jean Monnet, the Frenchman to whom CSC is a happy dream come true.

**France, Italy, West Germany, Belgium, the Netherlands, and Luxembourg**—present members of CSC—are being encouraged by Monnet to support the newly-formed Action Committee for a United States of Europe. Its first aim: to give some active commercial competition to the Americans and British in the field of nuclear development.

## FRANCE . . .

**"Nervous optimism" describes the feelings** of French businessmen these days. Most economic indicators are pointing up. Industrial production has jumped 10% since last December. Profits have risen accordingly. Capital-goods production is especially strong. Exports have been high. For most businessmen, 1955 has been a much better year than '54.

**But labor troubles are spreading.** Unions are fighting for a bigger share. Recession in the textile industry continues. Consumer-goods output has leveled off. A growing budget deficit seems sure for '56.

**So the businessman tries to show confidence** but finds that stability is difficult to grasp. Like the Paris stock market, he has adopted an attitude of "wait and see."

## ARGENTINA . . .

**Free enterprise has been promised** by provisional President Eduardo Lonardi. A complete reform of the economy and foreign-trading system is planned. But can political parties bury their differences long enough to shake off Peronism and get a new, free system in working order?

**Foreign businessmen and investors are optimistic**—but, here again, optimism is guarded. One thing is certain: the trend is one of transition, not quick reform.

**It will take months just to unravel the top-heavy bureaucracy** that thrived under Peron. It will take 3 or 4 years to set up a free economy. Foreign businessmen face good prospects, barring an unexpected political upheaval. But '56 will be a year of waiting.

## JAPAN . . .

**Japanese sales to the U. S. are booming.** Total volume for this year will top $380-million. Toys, cameras, chinaware, furniture, silks—these and many other items are flowing into the U. S. New tariff concessions will increase the flow.

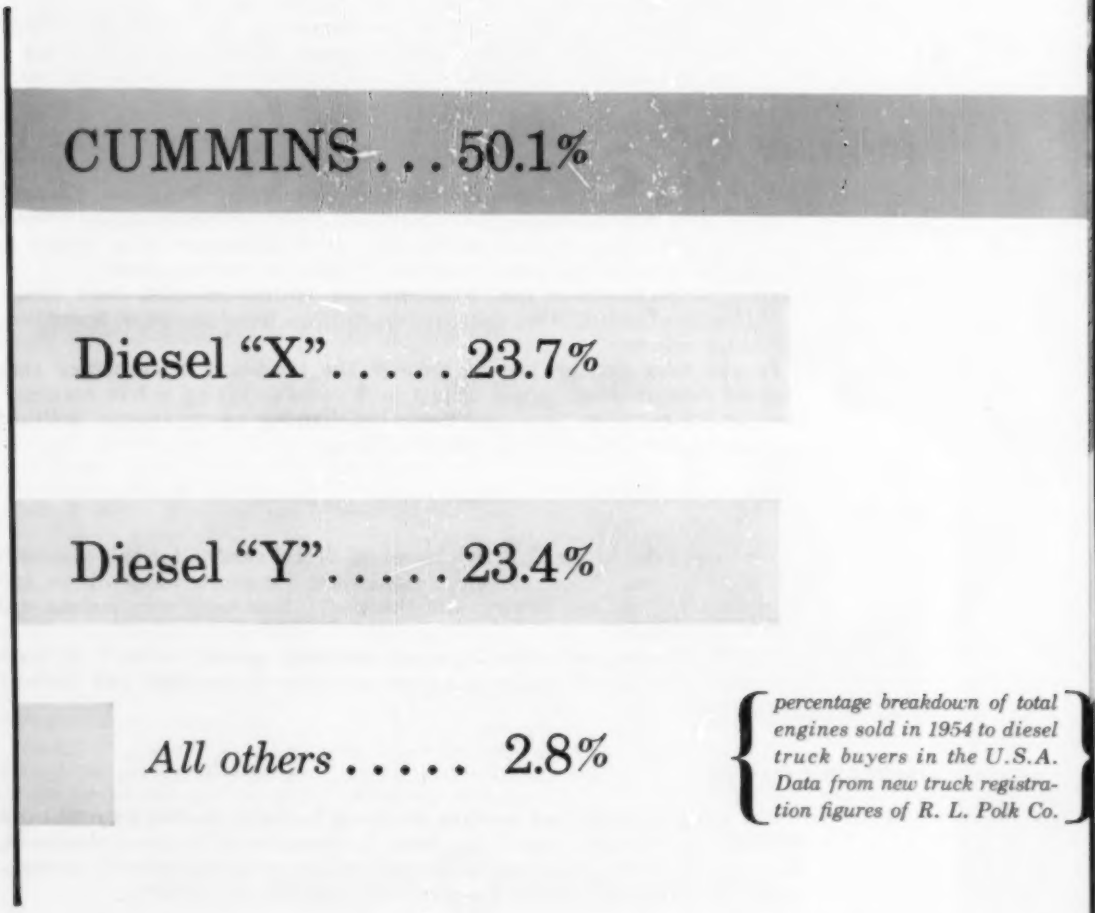
**British, German and other exporters are losing ground** in the U. S. market. And some U. S. businessmen are starting to complain and demand protection.

## UNITED STATES . . .

**The value of goods and services** produced in the U. S. this year will top $392-billion. "Unbelievable!" has been the reaction of business observers. And the record will have been made without any great increases in government spending and without any inventory buildup by industry.

*In 1952–* *In 1953–*

# Cummins Diesels more new trucks makes of




*percentage breakdown of total engines sold in 1954 to diesel truck buyers in the U.S.A. Data from new truck registration figures of R. L. Polk Co.*

*and again in 1954–*

# power than all other diesels combined!

In 1954, for the third straight year, Cummins Diesels powered over half of all diesel trucks sold in the U.S.A. Year after year, more and more truckers agree that Cummins is the best engine money can buy!

Here are a few of the Cummins exclusive features: unmatched fuel economy; simplified fuel system; low engine weight per horsepower; high mileage between overhauls. Because of such advantages, gasoline truck operators are switching to Cummins Diesels in record numbers.

When you specify Cummins, you *know* you're getting the most advanced diesel research, design, and engineering. Genuine Cummins parts and factory-type service are available from Cummins world-wide distribution organization.

**CUMMINS**

DIESELS give you **the big plus** **MORE PROFIT**

Cummins Diesel Export Corporation
Columbus, Indiana, U.S.A.
Cable: CUMDIEX

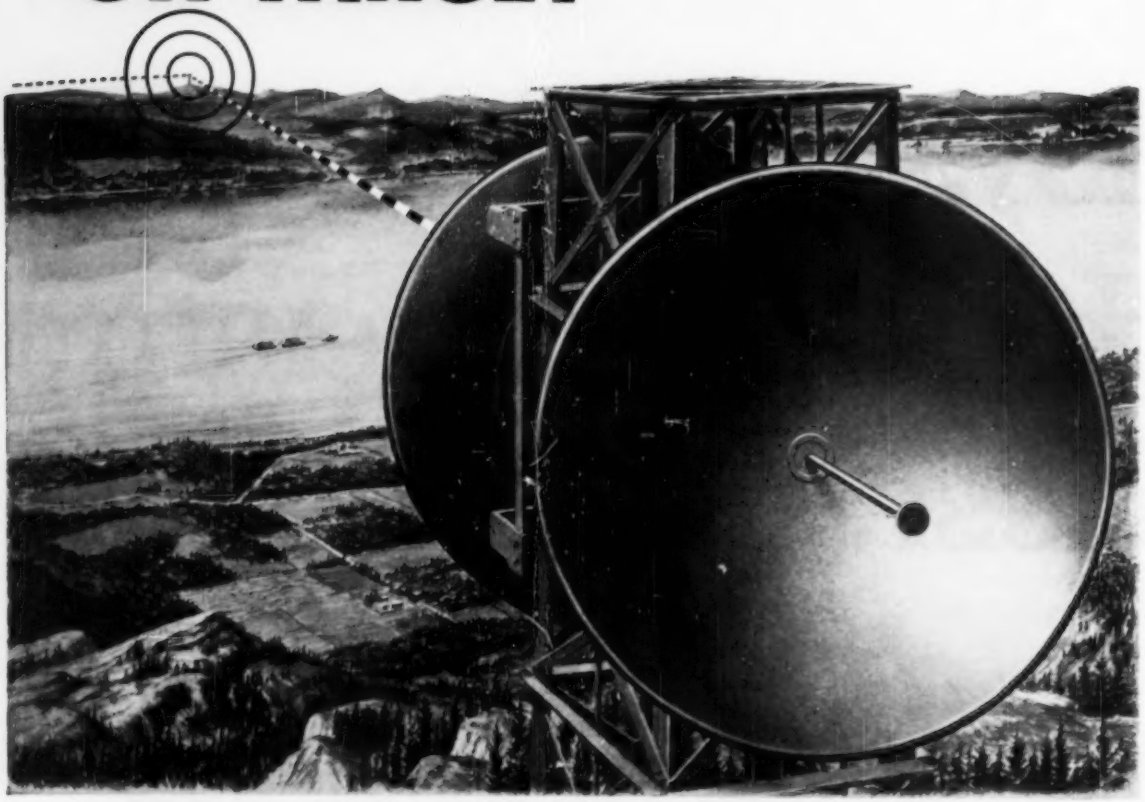
## CUMMINS DIESEL EXPORT CORPORATION

Cable: Cumdiex

Colmbus, Indicna, U.S.A.

New York City Office: 1459 Chrysler Building, East, New York 17, N.Y.

# "ON TARGET"



## . . . FOR ALL-INCLUSIVE, ALL-WEATHER COMMUNICATIONS THROUGH MICROWAVE

Microwave goes straight to the core of communications problems—with a simple solution! No costly wireline construction or maintenance . . . dish-like antennas beam the microwave signal between line-of-sight points separated by waterways, jungles, forests, or mountainous areas. Transmission is completely reliable, for it is *unaffected by weather*. Simultaneous, multi-channel operation easily accommodates the volume and variety of communications so vital to modern business. For example, as many as 19 telegraph circuits can be carried by any *one* of the many telephone channels provided by the ISE system.

Microwave was successfully demonstrated for the first time in 1931 by International Telephone and Telegraph Corporation. Today this system, developed and improved through the years, is made available outside the United States through ISE, associate of IT&T. Would you like the facts on what microwave can mean to *your* communications? ISE engineers will be happy to consult with you.

ISE — an IT&T associate

**International Standard Electric Corporation**

**Export Department, 50 Church St., New York 7, N. Y., U. S. A.**

Central telephone exchange equipment for installations of any size, automatic or manual.

Cables, wires, conduits, structures—equipment and supplies for every communication and power need.

Radio aids to air navigation . . . complete airport communications and lighting systems.

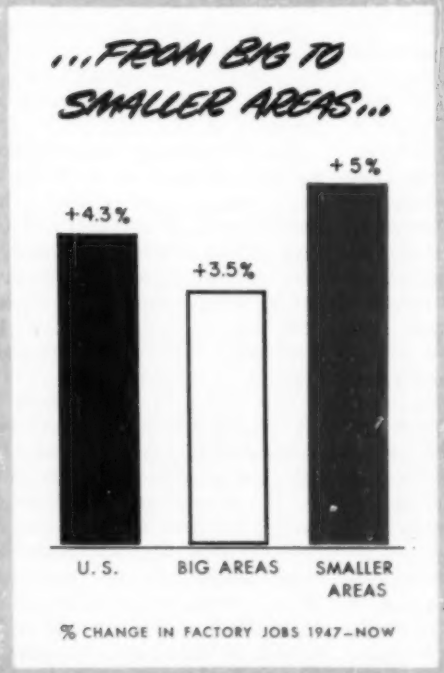
Teleprinters for automatic transmission and reception of written messages.

All equipment for television and radio broadcasting and receiving . . . point-to-point communication.

McGRAW-HILL INTERNATIONAL

# Management Digest

DECEMBER 1955
VOL. 10—NO. 12




# Here's How U.S. Industry Moves

Digested from a McGRAW-HILL ECONOMICS DEPT. REPORT

Whether you buy or sell in the U. S., travel there, expect to build an American plant, whether your interests are in technology or marketing or banking, the changing industrial face of the nation is important to you. See from the diagrams how:

- Industry is moving from the old Eastern and Midwest centers to the South and West.
- These shifts have been going on steadily for some time—and will continue to do so.
- Smaller areas are growing faster than the huge cities.

What's behind these vast changes? Simply this:

- High transportation costs cause industry to search for shorter hauls.
- Raw materials lure refiners and fabricators to close-by locations.
- Lower wage rates are a real magnet, especially in the South.
- Cheap federal power pulls big power-users to the new dam sites and the electrical networks that

spread out from these huge dams.

• Fresh markets arise as industry mills around.

Looking at the changes by areas, you will find that:

**New England** has been slipping steadily. Once soft goods were its big product—but that is no longer so. Today, the New England economy is split about 50-50 between soft goods and hard. True, since 1947 New England has gained in the making of furniture, railroad equipment, apparel, leather, and—to some extent—communcations equipment. But it is not enough to offset a 15% drop in soft-goods jobs or the 8% decrease in manufacturing employment.

As for the future: It looks as if the downward trend will not be readily halted or reversed.

**The Middle Atlantic** region, too, has suffered some setbacks. Once the nation's No. 1 industrial area, it has fallen back to No. 2. There have been gains in the manufacture of metal products, automobiles, and railway equipment. But in aircraft, shipbuilding, and apparel the Middle Atlantic share of the U. S. total has dropped a good bit.

Moreover, industrial capacity has not gained there the way it has in other regions; the emphasis has been on new equipment rather than on new plant.

As for the future: The Middle Atlantic probably will lose still more of its industrial standing. High wage rates are one factor influencing the future.

**The South Atlantic** states, seven in all, have reversed an earlier downtrend and now are the third-ranking industrial region in the nation. Soft goods (textiles and apparel) have grown rapidly. And there are good gains in shipbuilding, aircraft (notably in Georgia), and furniture (in North Carolina).

As for the future: More gains, on a moderate scale, are expected, for there is still a big pool of relatively cheap labor and power.

**The Great Lakes** area today is the nation's No. 1 industrial center. This is not because of any gain in jobs—it is because the Middle Atlantic region dropped back to make way for the new champion. The division of employment here is about 70% for durable goods, 30% for nondurables. Industries with fewer jobs are railroad equipment, fabricated metals, leather, rubber, furniture, and automobiles. The most significant gain has been in aircraft.

As for the future: This region's standing in industry will not change much in the near term; but it could go up fast if and when the St. Lawrence Seaway is built.

**The Farm West** continues to grow moderately over the years. For that, the seven states in this area can be most thankful to the aircraft industry—primarily in Kansas and Missouri.

As for the future: More growth looks likely. New plants (as a share of the U. S. total) are going up faster than the share of manufacturing employment.

**The South Central** states are not much of a factor industrially. There have been gains in apparel and chemicals, but jobs in hard goods dropped off.

As for the future: Slow growth is the best to be expected.

**The Southwest** is zooming like a skyrocket. It is the second-fastest growing region in the U. S. and may soon be the fastest. This is due to the expansion in such industries as petroleum, chemicals, metalworking, lumber, paper, apparel, and leather.

As for the future: Tremendous expansion is certain.

**The Mountain** region is the smallest industrial factor in the U. S. There have been gains in aircraft and chemicals, though the production of food is losing ground relatively.

As for the future: Growth prospects are good. More cheap power is on the way, and the construction of new plants is encouraging.

**The Pacific** coast is the fastest-growing industrial region in the nation, as it has been for quite some time. During the past 7 years, hard-goods employment—marked by a threefold increase in aircraft—rose nearly 50%. In nondurables, there was a less spectacular gain.

California and Washington, of course, have benefited enormously by aircraft. Oregon continues to rely on lumber as its main industry.

But at this stage, the industrial growth potential of the Pacific is beginning to look a little less phenomenal. New plants and factory jobs are about in balance.

As for the future: Some slowing of growth seems due, though new federal hydropower in the Northwest will offer a strong attraction to industry.

This sums up the nationwide picture geographically. And that automatically explains something else: the growth of smaller cities vs. the bigger ones. For as industry has been moving from the East (where the big cities are concentrated) to the South and West (where urbanization is not so marked), it follows that the relatively little places are making a better showing than the big ones.

## Quote of the Month

**JUAN T. TRIPPE**

**President, Pan American World Airways and International Air Transport Association**

"To make a world airborne, which had been surface-borne since the creation of man, was a stupendous undertaking. The degree to which that undertaking has been fulfilled in the short run of 35 years [to jet-powered planes] will stand out as one of the greatest achievements in recorded history. . . . For there can be no atom bomb potentially more powerful than the air tourist . . . meeting in friendship and understanding the people of other nations and races."

# Advertisers Welcome British TV

Digested from THE ECONOMIST (London), Sept 24, p1047

A resounding burst from the Halle orchestra and an advertisement for toothpaste signalled the end of British Broadcasting Corp.'s 30-year monopoly on broadcasting in the British Isles.

**In a shambles** behind the scenes lay all the elegant calculations about program costs, advertising revenue, and rates per thousand viewers that were so carefully scanned only a few months before.

Now, in a last mad dash to be on the air by 7:15 P.M., Thursday, September 22, the organization of the Independent Television Authority and its contractors had become a trampling melee of engineers and builders' laborers, bankers and performers, studio technicians, advertising agents, more bankers, more builders' laborers, all amid the ceaseless racket of concrete mixers and telephones.

**ITA was on the air.** That was clear, as the announcer extolled the beauties of just that one toothpaste. What was not so clear was this: Will commercial television in Britain pay?

Two program contractors, who rent facilities from ITA, are now on the air. Associated-Rediffusion Ltd., telecasting London programs during weekdays, is believed to have had, before its first program went on the air, more than £1-million in advertising booked for screening by year's end.

**The other company,** Associated Broadcasting Co., telecasts in London on weekends and, by the end of the year, will telecast in Birmingham. Its bookings are thought to be smaller than those of Associated-Rediffusion, but then its commitments are not so heavy.

Two more contractors should be on the air before the end of the year: Associated British Picture Corp. and Granada Theatres Ltd.

**Some industry observers** suggest that Associated Broadcasting has a good chance of breaking even during its first 12 months of operation. They suggest too that if Associated-Rediffusion, which has had to bear some exceptional expenses, does not break even, it will fail only by a narrow margin.

These two companies are without doubt skimming the cream of the potential advertising revenue. But they are also carrying the full burden of program costs.

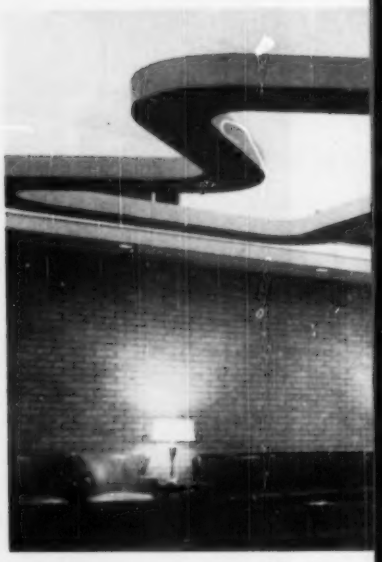
Advertising rates range for peak evening times from £975 a minute on weekdays and £1,000 on weekends to as low as £350 a minute for off-peak times. Peak evening hours —8 to 10 P.M.—are sold out for the first 13-week period and could have been sold several times over. Afternoons and late evenings are also fully booked.

**Demand** for the cheap, off-peak times—in the morning—has been dull. While rates have been attractive, many advertisers fear that morning programs will not find audiences. Not all advertisers share the program-contractors' view that housewives like to relax for a while in the middle of the morning.

Bookings, even for the peak hours, have been placed with no information better than the most conjectural guesses of the probable audience. Perhaps 400,000 sets capable of receiving two programs have been sold in London during the past 2 years, and between 100,000 and 150,000 older sets have been converted. On the B. B. C.'s estimate of 2.8 viewers to a set, the largest potential London audience might amount to 1¼ million.

**But as sales of** television receivers rise, advertisers will accept television as an established advertising medium. At least, that is the hope of the program contractors, who look to a potential advertising revenue of £10-million or more. They feel certain that the big names of both English and U. S. industry will be well represented on their screens.

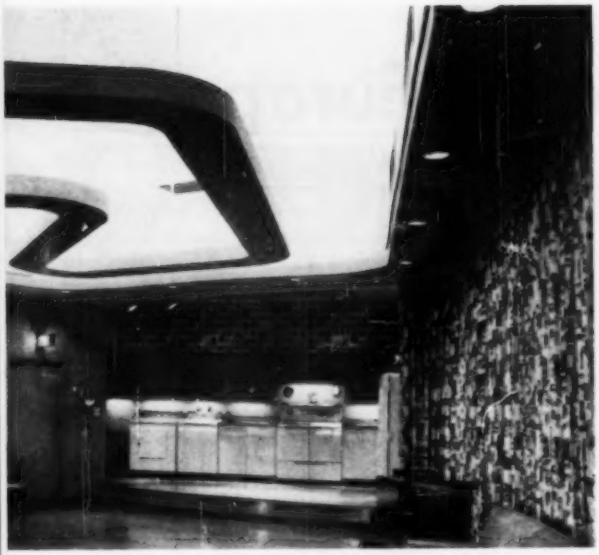
**VISIBILITY** Los Angeles congregation wanted church clearly visible at night. This is what they saw from 6 miles away. Sealed-beam reflector-type lamps provide visibility, also enhance church's architectural lines. Spotlights and floodlights proved to be cheapest and best suited for this particular job. Total load is 8 kilowatts. Congregation was well pleased.



**GOODWILL** Graceful lines
Public Service C

# Don't Hide Y

**MORALE** Light influences em
ployee morale. Knowin
this, Grant Apparel Mfg. Co. (Salt Lak
City) combined fluorescent fixtures wit
pastel colors to make its plant pleasan



New Mexico's Community Room and modern lighting provide atmosphere certain to build public goodwill for utility.

COMFORT

Emphasis at De Anza school (El Sobrante, Calif.) is on visual comfort.

# Your Light—Use It Liberally

ewing machines have spotlights that bring total lighting of 50 foot-candles at needle point. Besides lighting and pastel olors, the firm also installed summer cooling, adequate heating, rge restrooms, and a well-equipped lunch room. The aim: good mployee morale.

Digested from ELECTRICAL WEST, Sept, p90

Light is more than just something to see by. It can dramatize your structure. It can provide just the atmosphere you want, and, used in an effective display, it can help you sell your product. The pictures on these pages give you some idea of what can now be done with light. For the future, these are the trends and techniques that you will have to watch:

**Light for Industry**—Industrial-lighting standards will rise. The trend definitely points toward more light for production areas and to better-quality lighting—free from glare and wide variations in brightness. Automation will require better lighting. The reason: highly skilled labor that goes with automation will need higher-quality lighting to do its job.

More attention will be given to the entire visual environment. And all building interior and machine surfaces will be finished in lighter, non-glare colors. The object will be to reduce eye strain. Air conditioning and noise control will get more emphasis in production areas.

**Light for Retail Stores**—Trends in store lighting are to still higher levels of illumination, to improved color quality, and to more dramatic lighting effects. More luminous ceilings and large-area low-brightness panels for better color quality will appear. Lighting will be better integrated with architectural and structural design and will be safer.

**Light for Institutions**—Quantity and quality of lighting will improve. Here also engineered lighting techniques will better fit the structure. Improved equipment will follow.

# ECE: Trade Clinic for Europe

- **The Economic Commission for Europe has brought together businessmen from 28 nations**
- **Behind the scenes, expert groups are working out economic solutions without fanfare**
- **Latest project is East-West trade. It is making some progress despite many obstacles**

Digested from BUSINESS WEEK, Oct 8, p142

Businessmen and trade technicians from 27 European nations, Communist and non-Communist, plus the U. S. are gathering regularly at Geneva these days. They are members of a nearly 9-year-old commercial clinic for the solution of hard economic problems. Its name is Economic Commission for Europe.

Among ECE delegates the "Geneva spirit" prevails—a work-a-day version of it, without headlines. Current major problem before the experts is trade between the Soviet bloc and the West.

**ECE is the oldest** of three "regional commissions" set up by the United Nations. (The two others are for Latin America and the Far East). Operations started in March, 1947. Its businessmen and bureaucrat delegates study a wide range of business problems affecting Europe. Its economists constantly take the economic pulse of that area. Its lawyers draw up standard contracts for easier trade.

ECE cannot legislate. It cannot dictate. It has no money to lend or give away. Its only funds are about $1-million yearly, provided from the U. N. budget. Thus ECE is really an international business office, based on cooperation, trying to solve commercial, financial, and technical problems on behalf of its 28 participating members.

Small expert groups, working quietly in closed session, are the backbone of ECE's operation. Gunnar Myrdal, noted Swedish economist and writer, is the man in charge. He likes to compare ECE to an iceberg: The public sees only the big public conference; but the important part of the structure lies hidden amid the expert committees —beneath the surface.

**During the "cold war"** ECE was shunned by Russia and the states of East Europe. They sent delegates to the big meetings—to make speeches for the press. But they avoided the practical working groups. Then a change began even before the death of Stalin. Russia and her allies had already decided they had more to gain inside ECE than outside.

Now even tiny Albania sends delegates. Every Continental country (except Spain) and also Britain and the U. S. are active in ECE.

Since the cold war has thawed somewhat, the current big question is whether ECE will be the chosen instrument of East-West trade cooperation. Some believe it will. Thus far, results have been scattered. A few have been fairly important.

The Franco-Russian trade agreement was put through its planning and preparation stages by ECE. And long before the Russians made their "friendship" pilgrimage to Yugoslavia, ECE helped establish trade relations between Yugoslavia and some of the Russian "satellite" nations in East Europe.

ECE itself, though, makes no great promises about the future of East-West trade. Its experts in Geneva have reservations, particularly about the ability of the Russian bloc to increase exports and pay for imports.

**Special projects** of ECE include the coal problems of Europe and electric power development. The coal committee has been one of the most important ECE groups. During the early postwar coal shortage, the committee successfully handled over 237-million tons of coal and coke for 18 countries. It established an emergency series of 90-day distribution programs. At present, the group is battling with the current shortage of coal, especially trying to move big tonnages of Polish coal into Western Europe.

The electric-power committee of ECE specializes in international power development, the transfer of energy across borders, joint development of rivers and lakes, and rural-electrification studies. ECE is now working on a plan for development of unused hydro-power resources in Yugoslavia. The $419-million program would bring about a power usage agreement between Yugoslavia, Austria, Italy, and West Germany. Meanwhile, member nations of ECE that manufacture electrical equipment—Switzerland, Britain, Belgium, France—are examining the possibilities of the Yugoslav project with their own industries in mind.

## ▶ New

**Goods from overseas** will be pushed harder than ever before by American retailers this Christmas. New "foreign departments" are being started by many large stores.

Clothing imports, in large quantities, include kimonos and pajamas from Japan, childrens' sweaters and shoes from Italy, jackets and suits from Belgium and France, overcoats from England, and short pants made of leather from Germany.

A wider array of imported toys than at any time since World War II will be displayed. Japanese toys, highly creative and colorful in design, may cut deeply into American sales of German and English toys.

Stainless-steel flatware from Sweden, Germany and Japan will break sales records. Christmas trade in diamonds, too, will spark the industry to its greatest year ever.

Digested from AMERICAN LETTER, Oct 15

**Its Employee Suggestion System and its Work Simplification Program saved Detroit Edison $412,000 and 46,000 man-hours in 1 year. Here are some pointers about the . . .**

# Two Plans That Save Money

Digested from AMERICAN BUSINESS, Sept, p14

Through improved methods developed by its people who had been trained in work simplification, Detroit Edison Co. (a Michigan utility corporation) was able to save $200,000 plus 46,000 man-hours, during its last full business year. By adopting 403 employee ideas submitted through its employee suggestion system, DE saved an additional $212,000.

Cost to the company: a minimum amount of time and effort on the part of top management, plus a low cash outlay.

**Work-Simplification Program**—DE started its plan in 1951. The "program" is regarded as part of the company's routine operation and is not "set apart" as would be a course of instruction in, say, typing and filing. The company's philosophy is to give supervisors and rank-and-file workers "an increasing part in helping to determine the methods used to obtain improved productivity." The direct object, of course, is to discover simpler, more efficient ways of doing all jobs.

Training in work simplification is not an over-all company project. It is designed to meet individual departmental needs. Supervisor and staff training ranges from 21 to 56 hours; employee training ranges from 6 to 16 hours. The training services department provides assistance requested by all operating departments — covering training methods, materials, etc.

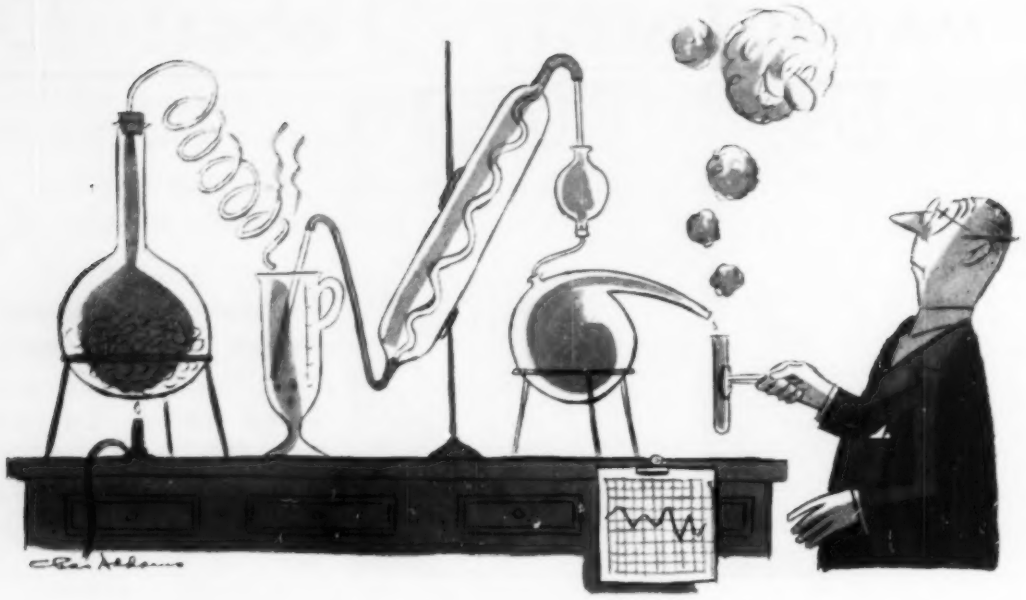
To date, the training services section has trained about 40 people who, in turn, are capable of instructing employee groups. All types of devices and techniques are used in the training sessons: motion pictures, slidefilms, charts, exhibits, and others. Problems are presented, trainees are divided into teams, and solutions are worked out. The employee magazine and company bulletin boards are used extensively to stimulate interest in the program.

**Employee Suggestion System**—The work-simplification program and the suggestion system are closely related. Under the latter, employees are paid cash awards that range as high as $2,000 for submitting cost-cutting suggestions. Many suggestions are not adopted, of course. But many are—and they cover a wide range of subjects.

Ideas are submitted to management in writing, by means of "suggestion boxes" placed throughout the plant and offices. Supervisors are not eligible for awards unless their suggestions pertain to work that is outside the scope of their responsibility.

**Results** of both work simplification and the suggestion system have improved all aspects of company operation. Here are three typical examples:

- Time sheets formerly were distributed daily to all outside work locations. The procedure was simplified; the sheets are now distributed once a week, reducing the number of forms used from 546,000 to 20,000 annually. Total saving: $45,000 a year.
- Photographic prints were ordered in duplicate in case one got lost. Research showed that only three prints had been lost in 8 years. Omitting extra prints saves $1,000 yearly.
- Meal expense claim-slips (submitted by hundreds of field employees) were made a part of daily time reports. Result: cost of handling an extra 19,000 reports yearly was eliminated—plus the cost of paper, printing, and storage.



*Choose a Scientific Forecast and . . .*

# See What's In Your Future

Digested from BUSINESS WEEK, Sept 24, p 90

Every businessman-policymaker knows that, like it or not, he must get ahead of the present and spend much of his time gazing into the economic future of his operations. He must rely on forecasts, both near-term and long-term. In fact, he must MAKE forecasts or have them made for him by a competent economics staff. He knows that action based on a wrong forecast can be fatal.

**Techniques of forecasting** capable of greatly reducing uncertainty about the future exist now and show promise of becoming considerably more reliable. Businessmen these days are increasingly basing their major decisions on detailed economic analyses.

Standard Oil of New Jersey, for example, maintains an 80-man economics staff. Many small concerns employ three or four trained men, or take advantage of the services of competent free-lance consultants. Modern management has, indeed, arrived at the viewpoint that "risk reduction is a key part of its job."

There are three basic strategies for economic forecasting—one based on quick information, another on shaping future trends from present events, and another on scientific analysis to determine underlying patterns. All three are used, either separately or in combination, to forecast economic events on a national basis, on an industry basis, and on a company basis.

**The information method** employs four techniques:

- Inside information—The businessman pays money for quick, up-to-date facts, on a confidential level, to help him solve special situations.
- Fast analysis—Typical problem would be: what kind of orders will we be getting from our dealers next week? The solution: find out what the dealers are selling this week by getting immediate sales reports; tabulate answers by high-speed calculators and relate the data to inventory records.
- Knowledge of limits—Typical problem: what will be the volume of durable goods production during a period of great defense expansion and booming demand? Technique: find out how much steel the government intends to make available for civilian production.
- First-phase analysis—The idea is to investigate your field, working with such knowledge as: (1) construction contracts awarded are the first phase of future building starts; (2) orders received by manufacturers are the first phase of the coming volume of production; (3) plans for capital spending programs precede new investment.

In information forecasting, if the facts are reliable, a forecast based on present events and linked to future developments will generally prove reliable.

**The events-to-trends method** also employs four different techniques:

- Trend extrapolation—The term means predicting the future movements of an economic factor by projecting into the future the trends you know it has taken in the past. A trend that is advancing

will keep advancing, at least until something else happens.

If, in your business, you do not need to bother much about cyclical swings around a trend, then trend extrapolation is a useful technique. For instance, if you want to figure the number of kilowatt-hours the city of London will use in the next 10 years.

• "Leading" series—The idea is to employ economic indicators in a series. New incorporations, business failures, prices of industrial common stocks, new orders for durable goods—these are a few of the typical "indicators" that may be grouped and studied as a unit. They do regularly lead and thus forecast turns in the business cycle. Their limitation is that they are extremely sensitive and are apt to fluctuate greatly from month to month. Thus, a serious downturn can mean a recession or amount to nothing but a temporary dislocation.

• Diffusion indexes—These are based on studying groups of economic indicators and noting the proportion of industrial activities undergoing either expansion or contraction at a given time. Their use is limited; their value is questionable.

• Wright's indicator—The idea is to make use of the normal "distribution curve." Ashley Wright (Standard Oil of New Jersey) put the idea to work when he found that upturns and downturns of a large number of business indicators tend to form into a series of bell-shaped curves when plotted on a chart, and that the peaks and troughs of the curve show up the turning points of the general business cycle.

**The test-tube method** is the classic strategy of economic analysis. The idea is to discover enduring relationships among economic factors and apply them to practical situations.

The "test-tube," or systematic, economist will go deeply behind each component of the gross national product if he is preparing a broad survey. He will study government plans and policies, analyze budget estimates, and weigh the legislative outlook. He will study the factors affecting capital investment, note ratios of inventories to sales and of production to capacity, and many similar ratios and values.

He will try to gage the effect of government fiscal policy on private investment and consumption. He will study credit extension and spending in relation to consumer-spending surveys and a host of similar factors. Finally, he will put these parts together and arrive at an economic forecast for his government, industry, or company.

A highly technical stage of forecast practice is the economic model, or "econometric" model. It is based on economic theory expressed in terms of mathematical equations. The Dutch, Norwegian, and Canadian governments are developing models of their economies to aid in policy-making. U. S. university researchers, too, are active in this oft-questioned area of the forecaster's science.

**The businessman** who has not, as yet, explored the possibilities of economic forecasting can but review the various techniques at his disposal. He can then choose among them to satisfy his special needs. Or he can hire outside experts to develop as simple or as complex a program as his business requires. In most cases, he will discover that forecast science can take much of the guesswork out of his operations.

# Company Newspaper Is Good Business

Digested from FACTORY MANAGEMENT & MAINTENANCE, Oct, p138

Many management men have become painfully aware recently of the need for vastly improved communications with employees. Some of them have decided, among other things, to take a good second look at their company newspapers—to discover ways to sharpen their effectiveness. Others, having no established "house organ" or company publication of any kind, have decided to consider the idea of starting a newspaper for the workforce.

**The remarkable point** about a company newspaper is that it can be an elaborate and expensive publication—a real professional job—or simply a one-page sheet the size of ordinary typing paper and worked up on an inexpensive mimeograph machine. In either case, it can be highly effective!

Granted that management needs a "voice" with which to express its viewpoint to the workforce, and for the purpose of spreading interesting company news, here are a few practical results that can be achieved with a company paper:

**Cost reduction** was accomplished in a large factory when management used the employee publication to spearhead a power-saving program. Suggestions were encouraged on cost-cutting ideas on how to reduce the use of steam, heat, water, electricity. Result: $100,000 was saved in the following year.

**Rumor prevention** was accomplished by the "house organ" in a leading chemical concern. Workers were much upset by reported plans to install automatic machines. Through the newspaper, management prevented personnel dislocation and low morale by explaining that the new machines would actually produce more jobs, not fewer.

**Safety equipment,** such as goggles and metal-cap shoes, were being neglected by workers in a large plant. Accidents were frequent. The company newspaper soon solved the problem by a substantial safety campaign.

**Economic education** was promoted by an industrial plant that faced an era of unusually vigorous competition on the market. Management was in a difficult position and, by means of the company paper, appealed to workers to increase their efficiency. Results were excellent. Many valuable suggestions were received because the reasons behind management's dramatic appeal were fully explained.

Success of a company paper, however humble it may be in form and size, depends on careful editing and full cooperation and sustained interest on the part of top management. It is a profit-wise job that is well worth the work.

# Selecting Supervisors: Start With a Good Plan

Digested from PERSONNEL, Sept, p107

Ten years ago, supervisory selection programs were new to businessmen. They were generally regarded as the none-too-practical invention of ambitious personnel directors. Today, after plenty of trial and error, many leading companies in the U. S. are relying on formal programs. They use them to select lead-men, sub-foremen, foremen, even department heads.

**A supervisory selection program**, very briefly, is a detailed procedure by which management "screens" or tests many employees and comes up with the one best suited for a supervisory job. The quality of leadership is usually stressed. The screening process employs personal interviews, written examinations, written appraisals of the individual by staff experts.

The idea is to have a definite, fixed plan for selection and to employ scientific aptitude and personality tests whenever possible. The screening of candidates takes place at regular intervals, not simply when a supervisory job is open. The company builds up a reservoir of supervisory talent from which it can draw whenever the need arises.

**Many factors have promoted** the growth and wide acceptance of formal programs. Management has become more and more aware of the following:

- Weaknesses in higher management can be traced to weaknesses in lower management, its major source of recruitment. Thus, more attention must be given to the quality of lower management.
- Advanced training courses for supervisors have uncovered many present lower-level supervisors who could not properly master new techniques. They should have been "screened out" originally.
- There are a number of fallacies concerning personnel selection that can best be overcome by a systematic program. Some of these false beliefs are: (1) Success as a worker or low-level supervisor qualifies a man for high-level supervisory work. (2) Long service, common sense, and technical knowledge should control selection. (3) Intelligence and a college degree are marks of leadership. (4) Opinions of superiors and fellow workers are a reliable index of a man's management potential. (5) A company must go "outside" for much of its supervisory talent. (6) All management people are seeking strong, able understudies for development.
- Scientific selection is needed to uncover able employees who are "buried" because of low seniority, geographic location, assignment under a dominant or biased supervisor, or because of being labeled "specialist."
- There is need to promote better morale by providing employees with an opportunity for fair consideration.
- A well-designed program can motivate employees to learn more and produce more on their present jobs.
- Supervisory selection is not far away from top management—off in the realm of the personnel department. On the contrary, there has been full management participation in most programs in the past 10 years.
- Formal programs give management more and better information to enable it to make final selections. Management need not rely on lower-level supervisors' knowledge and opinions of particular employees.
- The fact that a formal program is a continuous process means that vacancies can be filled promptly and without dislocation of operations on the department level. The employee is trained before he starts his new job.

**Recruiting the candidates** to be screened by the selection process is, in most cases, a question of getting a list of nominations from management. The use of a general advertisement among hourly-paid men, inviting them to apply for consideration, is rather rare. Management is usually afraid of being swamped by applications. And, as a rule, management would get far too many self-nominations if it were to invite applications by notices on company bulletin boards, in company newspapers, or in employee letters.

A few of the larger companies, however, ignore the danger and permit self-nomination—Monsanto Chemical, North American Aviation, Standard Oil of New Jersey, Armstrong Cork. They feel that self-nomination is an excellent morale builder for the workforce.

Selection standards vary greatly. Some concerns have age and education requirements, with high-school graduation as the typical standard for low-level supervisory jobs. Other companies, possibly more sophisticated in selection, realize that narrow requirements mean narrow selection. They weigh age and education, but only as two of many factors—with greater emphasis placed on leadership qualities.

## New

**Employee performance records** at the Delco-Remy Division of General Motors are giving a new lift to supervisors and foremen. Brief, factual comments on individual job performance are made on a newly designed two-page record—one for each worker.

Blue-colored squares on the right-hand page of the form are intended for positive remarks covering favorable job performance. Red squares on the left-hand side are used for negative remarks.

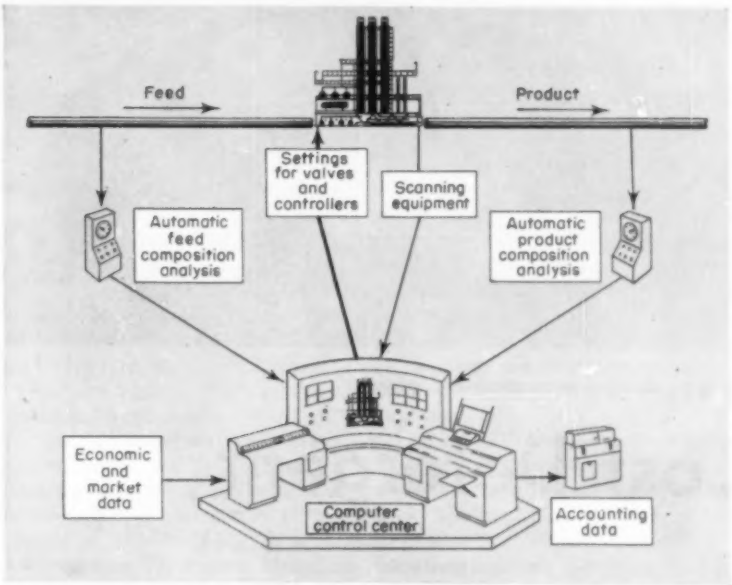
A glance at the two-color spread for any employee gives his foreman a quick picture of over-all conduct on the job during a given period. Each side of the form, red and blue, is divided into squares for recording various aspects of performance: productivity, dependability, willingness to take orders, ability to learn, etc.

Delco-Remy foremen are praising the new system. It is fast and efficient, they say. The company took 4 years to develop the idea and feels that it is worth all the paperwork research.

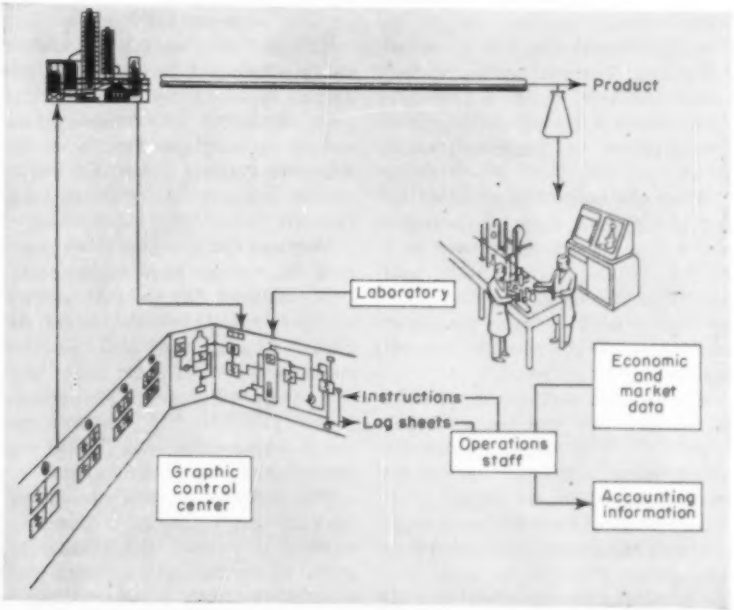
Digested from HARVARD BUSINESS REVIEW, Sept-Oct, p95

# The Refinery of the Future

Digested from PETROLEUM WEEK, Sept 30, p24




**THIS IS IT: The refinery will operate from market data fed to a computer control center. The computer will regulate quality and quantity of products.**




**TODAY: The plant is largely automatic but the directing "brains" are human. The operating staff, from log sheets and market data, direct the control center.**

Even today, petroleum refineries are largely automatic. This progress has been possible because continuous-flow petroleum processes lend themselves readily to complete automatic control. The trend is toward more automatic control, according to Fluor Corp. engineers.

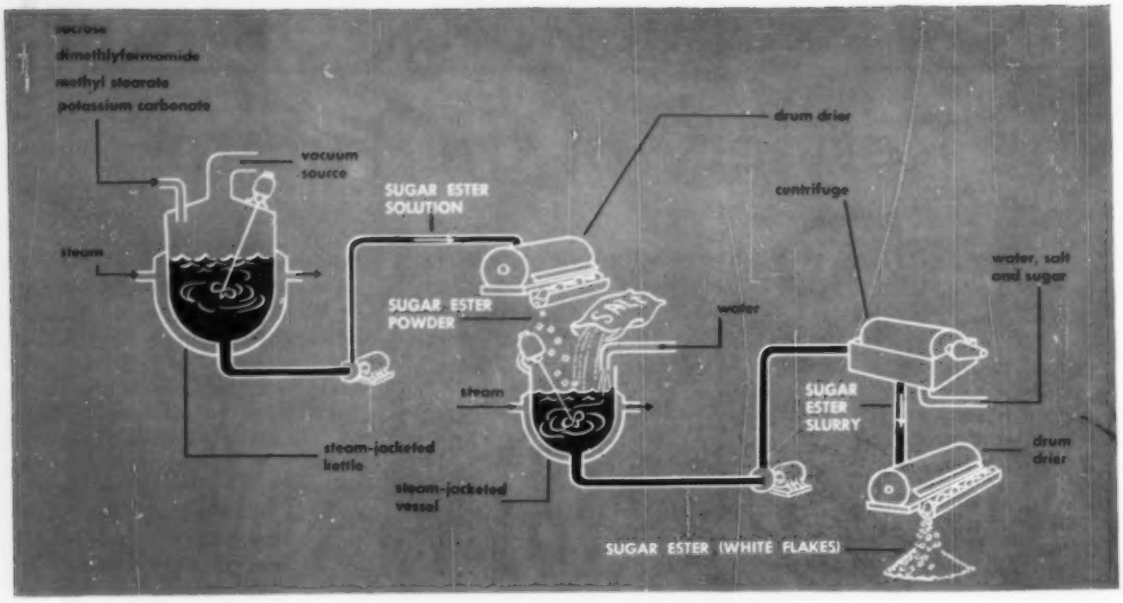
**How far** will the trend to automation continue? Already some current processes "repair" themselves to a limited extent; spare pumps, for example, may be arranged to start automatically on failure of the regular units. But such complete automation may not be able to pay for itself or even be desirable technically.

Automation will be carried out to the practical limit by means of a computer control center—the "brain" of the automatic processing plant. It will eliminate, or nearly so, the human links in control.

**The trend** to automatic data-handling equipment is already firmly established. Instruments not only print hourly log sheets in a matter of minutes, but also may watch critical points between logging periods and sound an alarm for any off-normal point.

The computer control center, to control quality of products, will analyze feed stocks, operating data, and product composition. But it will go further than this. From market and economic data fed to it, the computer will decide on the best process schedules, then put them into effect. Wide acceptance of data-processing equipment has already reduced time lags in formulating market data.

**In tomorrow's refinery,** the marketing information will be correlated by the computer with data and set process schedules. The use of marketing information this way will permit the most economical operation of the refinery as products will be made in the desired quality and quantity.




***Sugar, when converted by this process to sucrose monostearate, gives a . . .***

# New Low-Cost Detergent

Digested from CHEMICAL WEEK, Oct 8, p90

The process of making a detergent from sugar is ready for commercial use. Now that it has been unveiled by Foster D. Snell, Inc., (at a mid-October meeting of the American Oil Chemists' Society), soap makers from all over the world will be measuring the economics of the process, sizing up its market potential.

**This sugar-based detergent** has caught the fancy of industry. Reasons for the interest are not hard to find. The product is a non-ionic detergent that is non-toxic, odorless, tasteless. It also gives a low or moderate foam and is produced as a free-flowing powder. All its properties point to its suitability for work as a heavy-duty detergent.

As long as a year ago, sugar showed promise as a raw material for detergents. But the process that Snell was then working on (reacting sucrose with tallow) gave only a fair conversion of 50%. The present process gives conversions of over 90%.

**The secret** is reacting of sucrose with the fatty-acid ester of a volatile alcohol in a solvent. An excess of sucrose in the reaction produces the monoester, that is, sucrose monostearate.

In a typical run, sucrose, methyl stearate, and potassium carbonate (as a catalyst) are dissolved in the dimethylyformamide (or dimethyl sulfoxide). The mixture is agitated, heated at 90° C. for 9 to 12 hours. The reaction produces sucrose monostearate and methanol, which is stripped off.

**After the solvent** is distilled off and the product dried, it contains about 45% sucrose monostearate, 1 to 2% potassium carbonate, and 54% unconverted sugar. The product can be used as is, or the sugar can be recovered by further purification.

The product is dissolved in water, mixed with salt, and heated to 80° to 90° C. Centrifuging removes water, sugar, and salt. The sucrose monostearate is again dried.

**An excess** of the fatty-acid ester produces a diester instead of a monoester. The diester also may find valuable uses—as a food emulsifier, for example. Twice as much methyl stearate is added as is needed to make sucrose monostearate. After the solvent is removed, the product contains over 90% sucrose distearate and less than 1% unreacted sugar. So it needs no additional purification.

Though the process is still undergoing pilot-plant testing, it is regarded as ready for a commerical plant right now. The company does expect to continue developmental work for another 6 months, which should improve the process even further.

**Because the process** is so new, cost figures are hard to estimate. One producer figures that output cost of the detergent should be about 13¢ per pound and that the detergent should sell for about 18¢. The Sugar Research Foundation (New York, N. Y.), which sponsored the program, will license the process and charge a royalty.

The process may find uses other than making a detergent. Reacting an ester of linseed oil with sucrose gives a drying oil. Or using a dibasic acid forms a sugar polymer that might be suitable for either plastics or fibers.

# How Shell Molding Can Simplify Shop Problems

Digested from AMERICAN MACHINIST, Oct 10, p135

When the time comes to decide whether to switch your foundry operations to shell molding, knowing how shell-molded castings affect shop practice may be more important than knowledge of the actual molding techniques. You will have to make your decision in terms of shop requirements. So let's look at this relatively new process in these terms.

• **Clearances**—Costly machining operations normally done for clearance purposes are usually eliminated. It is seldom that any such clearances need be specified so closely that shell casting to size will fail to produce the desired result.

• **Surface Finish**—Shell castings commonly have fine finishes—of 100 to 120 micro-inches root-mean-square. This quality reduces or eliminates secondary polishing operations. It cuts cleaning to an air blast or a wire brushing in spots where sand is sticking to the casting. A fine sandblast may be needed to prepare a surface for painting or to provide a uniform surface color.

• **Tooling Simplification**—Opportunities extend beyond those resulting from fewer machining operations. Less stock need be removed, so cutting pressures are lower and jigs and fixtures can be made lighter and cheaper. Toggle and cam clamps can speed up fixture operation. Inexpensive fixed stops and supports can replace adjustable ones as shell castings are consistent in size and contour.

Greater than normal use can be made of cheap plastic jig and fixture bodies and frames. The casting itself may be used as a master for forming these workholders. Use of soft, contour or cast jaws and pot chucks for chucking a "rough" casting is entirely practical.

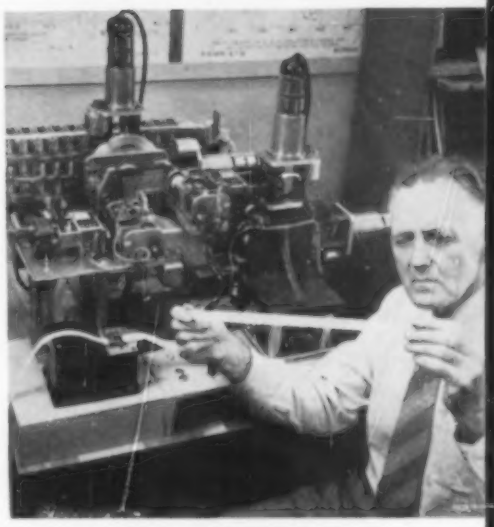
• **Cutting-Tool Life**—Shell castings give considerably longer life to cutting tools than do conventional sand castings. There are no sand inclusions, hard spots, porosity, or blowholes to plague the machinist. Tool loads, friction, heat, and wear are less because cuts are lighter. In one case, stock removal of 0.030 inch per cut increased broach life six to seven times over previous results with ⅛- to ¼-inch depth of cut.

• **Machining Reduced**—External cylindrical surfaces can usually be finished by grinding, with no turning necessary. Automotive crankshafts, for example, are cast within 0.040 inch of finish diameter; all turning operations are eliminated. On internal cylindrical surfaces, only reaming or grinding are required. Turning may also be eliminated by shell-casting of necks at shoulders.

• **Small Holes**—Holes as small as $\frac{1}{16}$ inch in diameter can be shell-cast in small pieces and in thin-wall work. Reaming is easy as shell castings do not have hard skins. Boring operations can usually be eliminated or reduced to finish boring. Internal broaching is greatly simplified too as the minimum amount of stock left to be removed permits replacement of long, expensive pull broaches by short push broaches.

• **Fast Stock Removal**—High speeds and feeds are practical because the amount of stock to be machined can be made very slight. Fast surface broaching is possible as there is no hard skin on as-cast surfaces. Facing can be extremely rapid, with removal of only 0.010 to 0.020 inch of stock. Frequently, flat surfaces can be finished by disk grinding or belt sanding, especially where a cleanup is sufficient for final flatness.

Planing and shaping speeds are only slightly affected by shell casting, primarily because they are not "high-production" processes. However, because of the small stock allowance, light fixturing can be used to make quantity setups of small parts on the planer table. A milling attachment on the planer can then give high output.



R. H. MALLINA, designer of the M-4 machine, inspects punched tape that controls machine's operation

# Tape-Controlled Machine Wires Complex Parts

Digested from PRODUCT ENGINEERING, Oct, p204

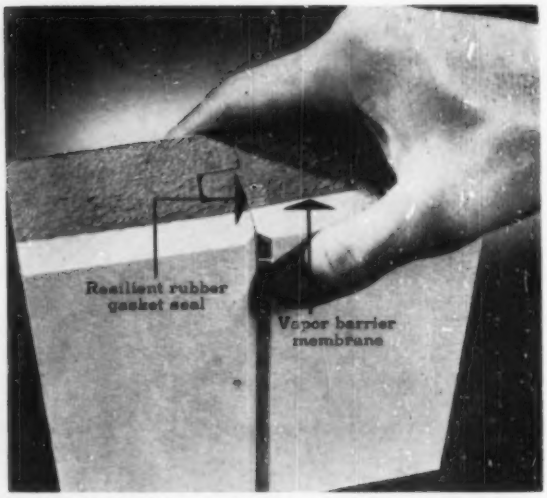
An experimental machine has been developed at Bell Telephone Laboratories to wire complex electrical apparatus automatically. It will be used in studying parts and equipment designs best suited for automation.

Called the M-4, the machine uses a process for making solderless connections that was developed at Bell Laboratories 2 years ago (McG-H Digest, Sept '53, p19). Connections are made by simply wrapping six turns of solid-conductor wire around a rectangular terminal; no soldering is needed.

Wire from a spool feeds to two rotating spindles. One pulls the wire in an inverted L-shaped movement to a terminal; at the same time, the wire is cut to the correct length at the second spindle. The spindles remove insulation from both ends of the wire as the ends wrap around the terminal.

The technique can be used with plastic panels having on one side various types of mounted parts, such as tubes and resistors. Terminals of the parts protrude through holes in the panel so they can be wired together.

INSULITE roof deck, a laminated insulating board, is here applied directly over beams, which are left exposed




CROSS-SECTION of Insulite shows resilient rubber gasket seal, vapor barrier, and finished interior surface

## *New Products, New Ideas Broaden . . .*

# Industrial Uses for Paper

Digested from PAPER INDUSTRY, Sept, p543

Research now underway in the paper and pulp industry should lead to many more new paper products and applications. Many in the industry feel that this research will eventually lead to these three important goals:

1. A solvent for lignin removal from the cellulose fibers.
2. Reagents that will drastically modify cellulose-fiber properties.
3. Additives that will spectacularly increase the strength of paper, which now is limited by the strength of the fiber-to-fiber bond.

**But what is in prospect** for the near future? And what new products do we have that even now can be put to use?

Not too far in the future may be the effective incorporation of a rodent repellent in paper bags. This will clear the way for extensive use of multiwall paper bags for food storage.

Current research in food preservation by irradiation with radioactive materials has led to a demand for a fibrous package that will withstand the necessary radiation. When this research succeeds, a vast new market will open for paper in food packaging.

**Present new products,** while not as outstanding as the development a few decades ago of the paper milk bottle, will be of importance to a wide segment of industry. The construction industry, for example, already has given such enthusiastic acceptance to Insulite roof deck that demand far exceeds the current supply.

This product, made by Minnesota & Ontario Paper Co. (Minneapolis, Minn.), is an insulating board laminated together to the desired thickness—1½, 2 and 3 inches—with a waterproof adhesive. One side is laminated to an asphalt-impregnated base that provides a white, flame-resistant, finished textured surface.

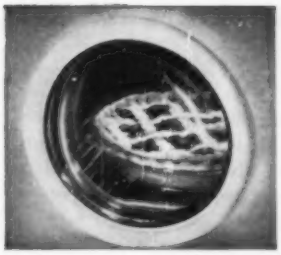
**The board** absorbs noise and makes an attractive, predecorated ceiling. Each slab has a vapor barrier membrane and a special resilient gasket in the square tongue-and-groove joint to prevent vapor leakage. The material provides more than twice the insulation value of wood alone.

A similar product, made by the same company and also generally accepted in the construction industry, is Insulite shingle-backer. Nailed over building sheathing, it serves as a backing for an exterior wall finish of wood shingles with wide exposure. The effect is that of a doble-coursed wood-shingle wall finish.

**An unusual** wood-fiber building board has just been announced by the U. S. Forest Products Research Laboratory (Madison, Wis.). Known as diffusion board, it has the unique ability of filtering radioactive fallout, poison gases, and germ-carrying particles from the atmosphere. Its purpose is to protect troops and civilians from some of the possibly deadly effects of modern war. The board is porous enough to allow passage of life-sustaining oxygen into shelters as well as the escape of carbon dioxide to the outside.

The publishing industry is studying a new latex-impregnated coated book paper sold by Sorg Paper Co. (Middletown, Ohio). Its advantage: half tones printed on this paper, known as Tensalex, can readily be reproduced by offset press; the reproductions are nearly identical with the originals.

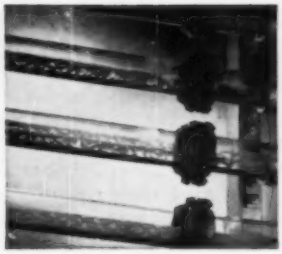
**Honeycomb material,** while not new, has met with increased de-



**1 Transparency**

You can let customers see inside your product through glass. A good example is the Corning brand oven window that *stays* crystal clear.

It's easy to keep clean.

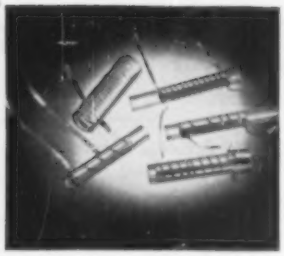


**2 Corrosion Resistance**

If your product must cope with corrosive liquids or atmospheres, glass will improve its operation, lengthen its life. It's the world's most corrosion-resistant material. The severe service Corning brand pipe stands in chemical plants illustrates the point.

**3 Heat Resistant**

Where your problem is heat or quick changes from hot to cold, Corning brand glass No. 7740 will stand temperatures below zero to 250° F. VYCOR brand glasses go to 1800° F. Picture shows pouring hot metal into VYCOR dish on cake of ice.

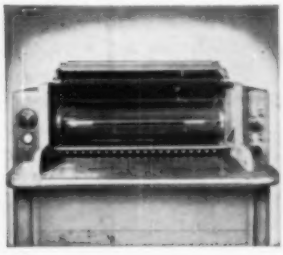


**4 Electrical Stability**

Metal bonded to glass forms which have high dielectric strength and low temperature coefficient makes inductances and capacitors of exceptional stability. Electronics industry uses tens of thousands of the glass inductances shown in the picture.

**5 Hermetic Enclosure**

Glass forms perfect glass-to-glass or glass-to-metal seals for vacuum-tight applications. Vacuum bottles are a good example. So are TV tubes and sealed beam headlights.



**6 Light Transmission**

Glass can accurately control and transmit light with permanent reliability. Good examples are all around you but one rather unusual one is the glass cylinder in this printing machine. It transmits the ultraviolet rays produced by a mercury arc lamp.

**7 Heat Generation**

Although you normally think of glass as an electrical insulator, Corning's E-C glass conducts electricity and radiates heat. E-C glass is ideal for space heaters, dryers, and other applications especially where an *even* heat distribution is wanted.

**8 Purity**

This man is looking through a solid bar (*one meter long*) of absolutely colorless glass—*the purest glass ever made.* It was produced at Corning Glass Works, and was considered impossible a few years ago. Now it promises better vision—through glass—for the future.

# 8 properties of glass to help you make better products

**These eight properties** give you only an indication of the versatility of glass by Corning.

This remarkable material can be made extra strong or weak, to conduct electricity or act as an insulator, to pass light or cut it off in virtually any size, shape or color you need.

*It may pay you well,* in terms of better operating characteristics, lower production costs, and extra sales points for your product, to consult Corning engineers before you reach the blueprint stage. For further information, just mail the coupon or write for a copy of, *"GLASS—its increasing importance in product design."*

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mand and new uses this year. Its application has been extended considerably for packaging. Among products now being shipped in ½- to 4-inch thicknesses of honeycomb are delicate instruments, fragile objects, blood plasma bottles, expensive books, steel panels.

New uses for honeycomb include that of crushed honeycomb (which has great resilience) and that of honeycomb in the construction of guided missiles, aircraft, and in various marine applications.

Paper from synthetic fibers (McG-H Digest, July, p20) reached its first commercial production at Riegel Paper Corp. (New York, N. Y.) in August. Fibers that can be used are nylon, Dacron, and Orlon.

**The synthetic fibers** give these important properties to the paper:

1. Resistance to chemical attack, which will make them useful in filtration of corrosive liquids and in packaging of chemicals.
2. Stability to moisture—essential in map tracing papers, records, and documents.
3. Increased folding endurance—about 200 times that of paper made from wood pulp and rags.

Along this same line, St. Regis Paper Co. (New York, N. Y.) has been experimenting with papermaking principles to make fabrics from synthetic fibers.

**An application** that could result in a substantial demand stems from the development by Brown Co. (Berlin, N. H.) of Nibroc wipers. They are made of soft but tough one-ply sanitary disposable sheets for use in cleaning machinery, wiping glass, and polishing high-gloss surfaces.

A relatively new and fast-growing product is the spirally wound paper tube. It is made from chipboard, which is manufactured from waste newsprint and corrugated boxes. The construction industry especially is finding the tubes useful: as circular concrete column forms, voids in concrete slabs, and air ducts for perimeter heating.


*Modern machines that keep floors clean and in perfect condition*

*FLOORS LEFT COMPLETELY DRY AND READY FOR USE AT ONCE*

**MECHANICAL FLOOR SCRUBBING**

The problem of keeping large industrial floor areas clean is now solved. A rapidly increasing number of firms using our scrubbing (or polishing), rinsing and suction drying equipment are reaping the benefit by saving labour and wages and keeping floors spotless through regular daily maintenance. Floor scrubbing with Cimex-Fraser Tuson machines is not hard work and with the Vulture (model illustrated) as much as 3,000 sq. ft. (say 300 sq. metres) can be scrubbed, or, by a quick change of brushes, polished in the hour.

The Dipper Suction Drier shown also is used simultaneously to remove all dirty water—leaving floors completely dry and ready for immediate use.

For complete information about these time, money and labour saving machines write to

*Cimex-Fraser Tuson Ltd.*

CRAY AVENUE, ORPINGTON, KENT, ENGLAND


## New

**Lighter, stronger glass jars** made at double the present rate are the result of 12 years' developmental work at Owens-Illinois Glass Co. (Toledo, Ohio).

The new process turns out glass containers 20% lighter and 10% stronger than conventional ones. For years, Owens-Illinois claims, glass jars have had too much glass in non-critical areas because the vulnerable areas, where the jars are bumped or put under pressure, have had to have the extra glass. Conventional methods have not been able to distribute the volume of glass properly.

The new jars now have the glass distributed where it's needed most. The machine that makes the jars operates at twice the speed of any similar machine of the same size.

First of the new containers will be the wide-mouth jars favored by food packers. Now under design are machines to make lightweight, strong, narrow-neck containers. These will be aimed at the beer, milk, and soft-drink industries.

Digested from BUSINESS WEEK, Oct 1, p136

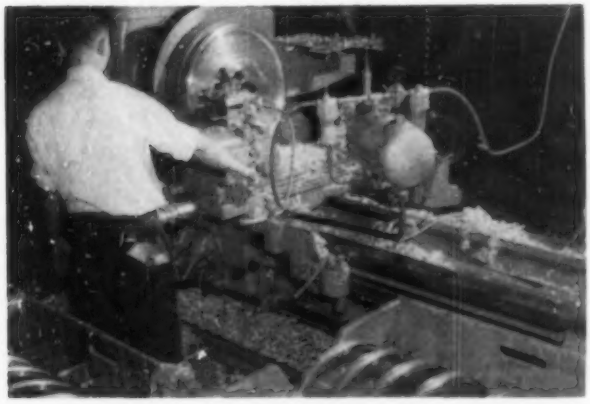
# ▶ HOW TO . . .

## . . . cut accident expense

Are your truck drivers costing you too much money as a result of frequent accidents on the highways? Armour and Co. (Chicago), employers of a large staff of drivers, decided that $1,250,000 was too much to pay out annually for this item.

So Armour developed a three-part driving test that must be successfully completed by each of its truck drivers: (1) a written examination on traffic laws; (2) a reaction-time test of eye and foot coordination; and (3) a visual performance test—using the "Keystone Tele-binocular" method to measure color and depth perception and vision. Armour has installed its driving test set-up in a large bus that can reach all branch offices. Accidents have been cut as much as 45% in some areas.

Digested from FOOD ENGINEERING, Oct, p65



## . . . double cutting-tool life

Mist cooling has made substantial savings in machining both steel and nonferrous metals at Orenda Engines Ltd. (Canada). While cutting speeds and feeds have not been materially increased, tool life has been lengthened—up to and over 100%. Surface finish has improved.

Typical job is contour-facing and turning of an aluminum-alloy rotor disk with a carbide tool at 1,800 feet per minute. Mist-coolant tank is carried on brackets attached to the lathe carriage.

Digested from AMERICAN MACHINIST, Sept 26, p121

## . . . save on small-assembly cost

If your operators are performing small-parts assembly without the aid of a planned work area, you are losing money needlessly.

This layout won second prize in a recent methods-improvement contest sponsored by the Industrial Management Society. Before the improvement, the operator worked without a planned area and without the aid of a power tool. Now she has (1) a parts tray divided into sections, as shown; (2) a holding jig located in front center of tray; and (3) a power tool for tightening nuts.

The savings on labor, for this one-worker operation, amounted to $2,100 in a single year.

Digested from FACTORY MANAGEMENT & MAINTENANCE, Oct, p103

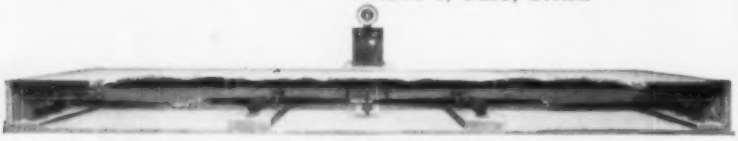
CHECK ON NEW
TOLEDO®
HI-WEIGH
TRUCK SCALES

KNOW YOUR LOAD!

Today, doubtful truck weights are more costly than ever . . . affecting your dealings with customers, with vendors, with highway enforcement officials.

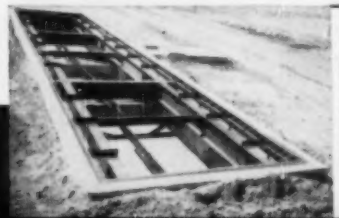
*New* TOLEDO Hi-Weigh Truck Scales are engineered for today's heavy duty needs . . . choice of two-section, four-section or axle load in full range of models. Long-life accuracy assured by Toledo double pendulum mechanism . . . self-gauging replaceable pivots . . . parallel link suspension bearings . . . easy-to-operate unit weights . . . automatic indication with the famous Toledo dial. Send for literature, form 2417-A. Toledo Scale Company, Toledo 1, Ohio, U.S.A.

Hi-Weigh Axle Load Scales help you check load distribution as well as total weight. Economical shallow pit installation. Choice of 20 ton capacity with 8′ x 10′ platform or 30 ton with 10′ x 10′ platform. Toledo dial offers quick, accurate weighing . . . outstanding dependability.



60 TON—4 SECTION—60 FT.
TOLEDO HI-WEIGH TRUCK SCALES

These BIG four-section scales are built to weigh the heaviest and largest highway vehicles. In them you get the capacities and platform lengths required to meet needs today . . . and tomorrow. They are designed for economy of installation and long-life durability in heavy duty use. All Toledo Hi-Weigh Scales available with Toledo Printweigh for recording weights on tickets, strips, or sheets.



NEW ECONOMY IN INSTALLATION

Toledo engineering has integrated lever, weighbridge, and pit design to achieve high strength combined with economical, long-life installation.

SERVICE Factory-Trained 300 Cities

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Headquarters for SCALES


# Automatic Dipping

## . . . improves quality of porcelain enamel, speeds production of pans, cuts labor costs

Digested from CERAMIC INDUSTRY, Sept, p50

From coil of steel to ground-coat firing, the manufacture of refrigerator vegetable pans at General Electric Co. is completely automatic. You could do the same with any simply shaped pan needed in quantity.

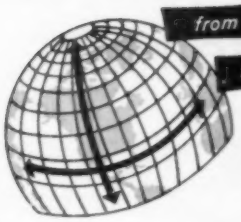
**The new production line** features a Bliss multiple-die press for drawing the pans, an ingenious conveyor system, an automatic positioning machine, an automatic spray pickling machine, and two automatic dipping machines. The latter are the first of their kind in use.

When pans emerge from pickling, they are picked up in groups of four by an automatic arm actuated by a photoelectric cell. The arm lays the pans on a roller conveyor, which carries them to a second arm that transfers them to dipping-machine tongs.

**The dipping machine,** elliptical in shape, has a two-flight endless conveyor carried on guide rollers along the side of the tank. As the conveyor moves to the loading position, an air cylinder opens work tongs, the arm places pans into tongs, and tong fingers close.

The tongs then rotate the pans as they enter the tank and continue to rotate them to assure complete, uniform coverage and drainage of excess enamel. A shaking motion helps remove beads and enamel not drained off during final rotation. Risers on track paths cause the tongs to rise and fall, producing the shaking motion.

**At the unloading station,** an air cylinder releases the clamps and a worker removes the ground-coated pans and places them on a chain conveyor leading through an infrared dryer into the firing furnace. Pans are fired at 1470°F. Firing zone is 47 feet long, chain speed is 12 feet per minute. Workers then inspect the pans and send them, by roller conveyor, to a second automatic dipping machine for the cover coat.



from the ARCTIC to SOUTH AMERICA

from the FAR EAST to CONTINENTAL EUROPE

# NORDBERG GRINDING MILLS

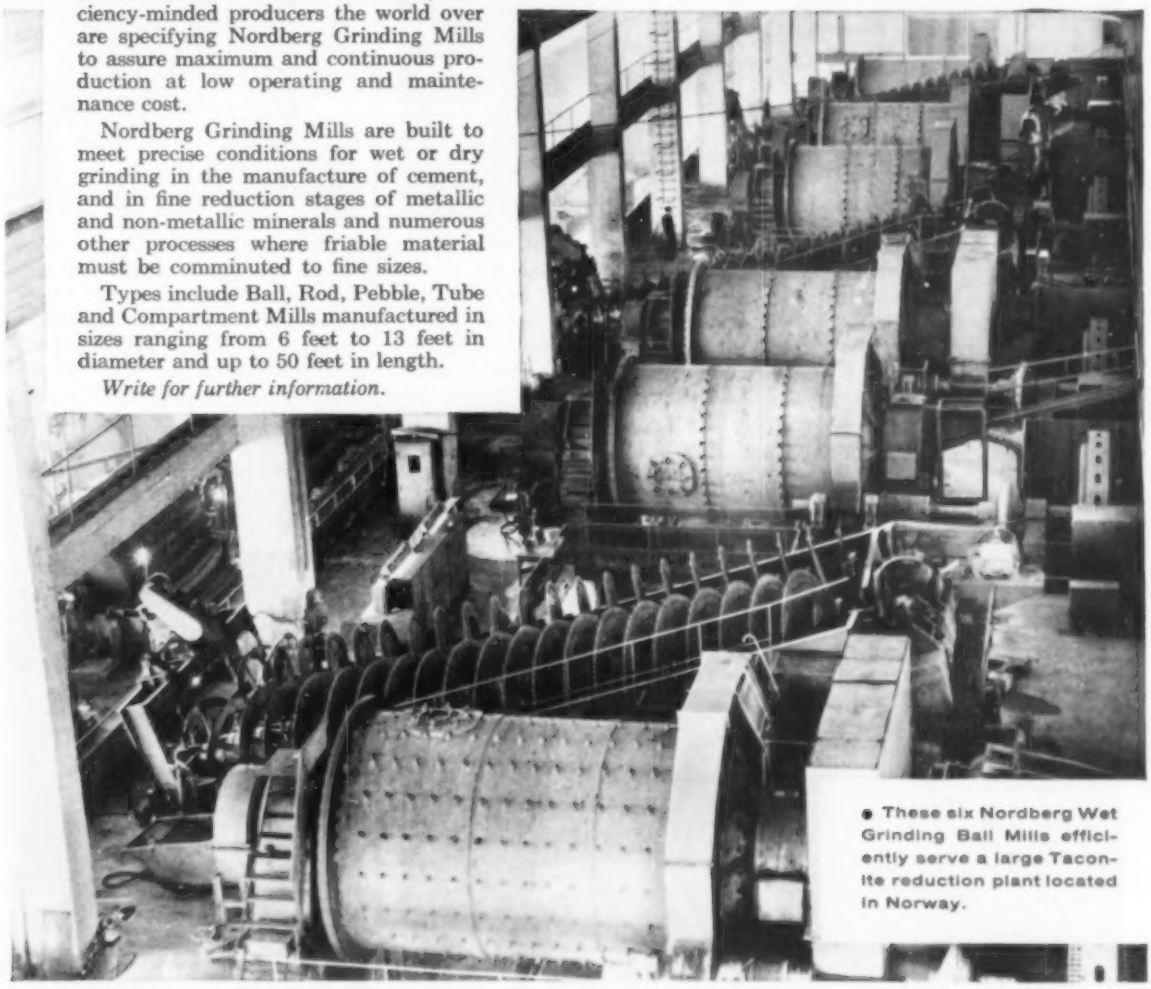
## are Industries' choice for the efficient reduction of ORES, CEMENT and MINERALS

• More so now than ever before, efficiency-minded producers the world over are specifying Nordberg Grinding Mills to assure maximum and continuous production at low operating and maintenance cost.

Nordberg Grinding Mills are built to meet precise conditions for wet or dry grinding in the manufacture of cement, and in fine reduction stages of metallic and non-metallic minerals and numerous other processes where friable material must be comminuted to fine sizes.

Types include Ball, Rod, Pebble, Tube and Compartment Mills manufactured in sizes ranging from 6 feet to 13 feet in diameter and up to 50 feet in length.

*Write for further information.*



• These six Nordberg Wet Grinding Ball Mills efficiently serve a large Taconite reduction plant located in Norway.

**NORDBERG MFG. CO., Milwaukee, Wisconsin, U.S.A.** CABLE ADDRESS: NORDBERG

**LONDON** 19 Curzon St., W.1.

**JOHANNESBURG** 42 Marshall St.

**MEXICO, D.F.** Dolores 3

NORDBERG THE WORLD OVER

*Represented in Principal Trading Areas Throughout the World* © 1955, Nordberg Mfg. Co. XGM155

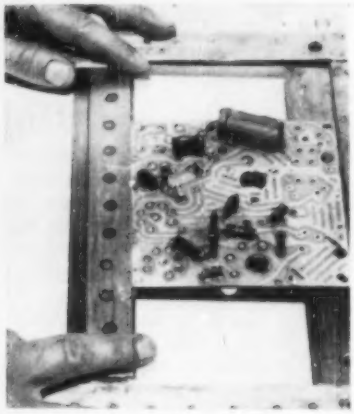
## *Printed Circuits:*

# Key to Faster Electronic Assembly

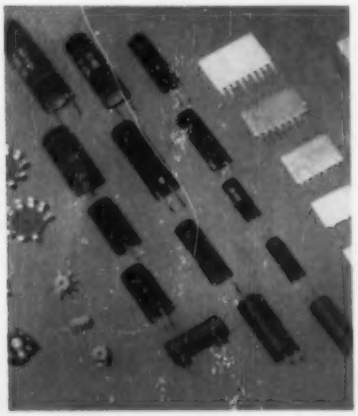
Digested from ELECTRONICS, Sept, p137

**1 Printed circuit**—that is, a circuit printed onto a board, rather than wired on—begins as a drawing. Here Photocircuits Corp. has even mechanized drafting. Tape stripped between holes on aluminum master indicates conductors. Silk screen pattern from master is used to place acid-resisting ink on copper-clad plastic. Etching removes copper, leaves circuit.

**2 Terminal holes** in printed-circuit board are punched out on a Stromberg-Carlson machine. Operator guides pantograph stylus through templet. Punch is triggered each time stylus falls into templet hole. Punched-tape control can also be used—as can other variations of such a machine. Most machines use a stylus-templet combination to locate holes.



**3 Etched board** now contains the printed circuits. Then parts are attached to eyelet or prong terminals. Point-to-point wiring, where the small parts themselves make up most of the wiring network, is completely avoided. Hand operations such as soldering and placing parts are largely eliminated. The result: fast production with assembly-line techniques.



**4 Parts show some minor changes** to make them fit printed circuits. All terminals come out at one side or end, allowing magazine feed and simplifying assembly to one side of the printed-circuit board. Parts shown are tube sockets with flat terminals, bypass capacitors, and small sealed printed circuits. Other parts will require a little redesign to eliminate present hand-insertion.

**5 Insertion head** of Melpar, Inc., machine automatically inserts parts into printed-circuit board and solders them into place. Here machine selects the required part, bends the leads, inserts them, then clinches and solders them with a heated anvil. Six different parts can be assembled. On each succeeding cycle, another component is inserted and soldered. Punched cards control component selection.

**6 Assembly line**—the dream of every electronics manufacturer—puts together circuit boards for Admiral Corp.'s television receiver. These machines insert 70% of the required components. Resistors, capacitors, and tube sockets are handled automatically. Operators are used mainly to keep magazines filled, though they do some unavoidable handwork. Other machines are completely automatic.

# Ceramic Tools . . .

## . . . are so new that little is known about them. One thing is sure: they look good

Digested from AMERICAN MACHINIST, Sept 26, p176

Practically anyone familiar with metal-cutting tools will immediately ask himself, "How can a ceramic cut hard steel or get through the tough skin of an iron casting?"

**It can**—at cutting speeds from 600 to as high as 3,000 feet per minute, at depths of cut ranging from 0.110 to 0.250 inch, and at feeds of 0.008 to 0.016 inch per revolution. When tools are designed properly, and supported adequately in a machine with sufficient power, they can remove metal at a rate *four times* as great as that possible with tungsten-carbide bits.

Definite information is limited as the five U. S. companies making ceramic bits experimentally are saying little about what the bits are or how they are made. Most bits are principally aluminum oxide with varying percentages of other oxides. They are formed by powder-metallurgy methods, then sintered at 3400° to 3600° F.

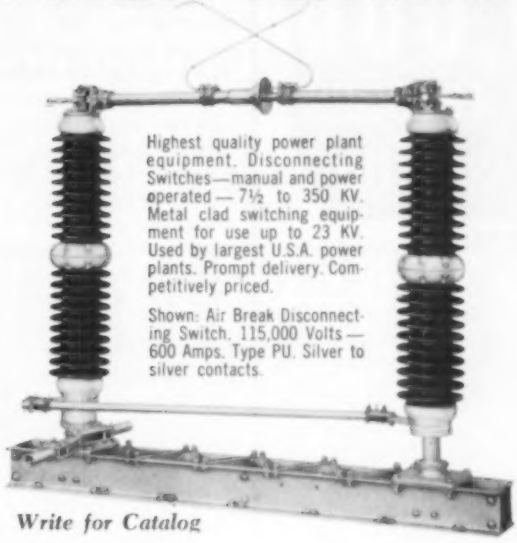
**Tests have shown** that there is no apparent wear on cutting edges and no cratering in top surfaces during turning. Failure comes from a breakdown of the nose radius or an abrupt breaking away of an area of bit material.

**A typical** test machining job was the turning of a contoured alloy-steel part of 2- to 4-inch outside diameter. The $\frac{3}{4} \times \frac{3}{4} \times \frac{5}{8}$-inch oxide bit had a back rake of −5 degrees, a side rake of −5 degrees, and a clearance of 5 degrees all around. It operated at 1,500 feet per minute with a feed of 0.005-inch and depth of cut of $\frac{1}{16}$ inch.

### Oil or Coal

In November, we did something startlingly new—we made coal from oil, according to the title of the article on page 24. Of course, it should have been "New Plant Makes Oil from Coal." If you did not read it, why not go back and do so; it's a good story.


COLE SWITCHES FOR PROMPT SHIPMENT!



Highest quality power plant equipment. Disconnecting Switches—manual and power operated—7½ to 350 KV. Metal clad switching equipment for use up to 23 KV. Used by largest U.S.A. power plants. Prompt delivery. Competitively priced.

Shown: Air Break Disconnecting Switch. 115,000 Volts—600 Amps. Type PU. Silver to silver contacts.

*Write for Catalog*

Cole Electric Co.

OVERSEAS OPERATIONS, LTD.

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NOW AVAILABLE!

Now, due to increased production, cords and cables manufactured by the largest electrical wire manufacturer in the western United States are ready for immediate shipment.
Bronco cables—neoprene, rubber, asbestos—are famed throughout the world for their toughness and flexibility.
Bronco cords were the first standard product to be made with a Neoprene jacket to give them maximum protection from oil, sunlight, ozone, and all other enemies of natural rubber.
Now, the new Bronco 66 *Certified* is made with a protecting outer jacket which contains 67.32% virgin Neoprene—the greatest, most enduring protection ever given a flexible portable cable.

WRITE for Catalog

WESTERN INSULATED WIRE CO.

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# 50,000 new reasons for saving

AEI, the world's largest international air cargo system, always provided its air express service at less-than-airfreight rates while moving your shipments on a DAILY or earliest-flight basis. NOW, its new tariff offers sensational further reductions through lower rates generally and through extension of its low specific commodity rates

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Firm_____
Address_____
City_____ Postal Zone____
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# Tool Increases Core Recovery

Digested from ENGINEERING & MINING JOURNAL, Oct, p78

"We had to do a little experimenting on the first hole that slowed us up and reduced the core recovery. On the second hole, however, we started the wire line at 470 feet and in 11 days (22 shifts) it was completed at 940 feet with a core recovery of 94%. It would have taken us nearly twice as long with the old method and there would have been considerable grinding that would have reduced core recovery." That's one driller's comment on diamond drilling with wire-line equipment.

**Other drillers** have had as good or better results. If cost savings continue like those claimed, then whole areas of less promising, more remote lands fall within the realm of economic diamond drilling. So, as far as diamond drilling is concerned, wire-line equipment could be the biggest advance in exploratory drilling in 50 years.

In exploratory drilling, cores tell you what the rock is like below your feet. Any device that raises core recovery is sure to be welcome.

**The basic advantage** of the wire-line core barrel developed by E. J. Longyear Co. (Minneapolis, Minn.) is its ability to recover drill core from the hole without removing the string of drill rods.

This is how it works: When a driller wants to remove a core, he first removes the top drill rod. Then an overshot assembly is dropped through the drill rods at the end of a wire line. The bottom of the overshot assembly has two hooks that latch onto the top of an inner-barrel assembly containing the rock core. Pulling on the wire line brings up the overshot assembly, the inner barrel, and the core. A second wire-line core barrel can be dropped immediately into a wet hole, thus saving considerable time. For a dry hole, the core barrel is lowered on the end of the wire line.

**Another advantage** is the speed with which drilling can be resumed. Also, the wire line obviously means easier work on the rig floor. For instance, only one round trip for the drill rods may be required for 100 feet of coring at 10-foot intervals with wire line, as opposed to ten round trips with conventional equipment. With this speed and ease of operation, shorter core runs are economical in bad ground.

Because the drill rods are not traveling into and out of the hole every time a core is pulled, there is less chance of battering pieces of rock from weak beds, causing cave-ins. Furthermore, since the bit remains near the bottom of the hole, the problem of drilling through cave-ins is virtually eliminated.

**Bit life and hole depth** are the keys to application. Since the drill rod must come out of the hole when the bit is changed, there would be no advantage if bit life were just about that of core length.

In ideal coring ground, Longyear engineers state that operating costs for wire line and conventional equipment are about comparable, to 500 feet. From there down, advantage grows for wire line with probable 15 to 20% lower costs in a 3,000-foot hole.

In difficult coring ground, costs may be identical but recovery is much better with wire line. After all, what you want for your exploration dollar is maximum footage of core—not maximum footage of hole.

## New

**Atomic heat for chemical processes** moved out of the "just talking" stage when the U. S. Atomic Energy Commission and the U. S. Bureau of Mines tentatively agreed to initiate development of a suitable reactor for synthesis-gas production. Such an atomic furnace would operate at 2000° to 3000° F.

Dictated by the kinetics of synthesis-gas production—which gives poor yields below 1800°F.—these useful temperatures provide a golden economic opportunity for atomic energy to prove itself in the chemical industry. It is estimated that reactor heat could slice as much as 9¢ per 1,000 cubic feet from the cost (15 to 20¢ per 1,000 cubic feet) of making synthesis gas by burning coal with tonnage oxygen.

Digested from CHEMICAL WEEK, Oct 1, p75

*For*
*Clearer Communication*
*and*
*Greater Efficiency*

*Use*

# HITACHI TELEPHONES

Hitachi Telephones and Switchboards are manufactured in the most modern plants and they have gained a favorable reputation for excellent quality. Hitachi, Ltd. manufactures all types of generators, transformers, rolling stock, and every other kind of electrical equipment. It holds a leading position in the electro-mechanical field in Japan.

Hitachi, Ltd.
Tokyo Japan

*Cable Address: "HITACHY" Tokyo*

# Salesmen Need a Boost? Try a "Sales Bulletin"

Digested from SALES MANAGEMENT, Sept 20, p76

**Is your sales force under pressure from heavy traveling and heavy competition in hard-selling markets? Are complaints coming into the "home" office from dissatisfied customers? Most important of all, are results slipping? If so, a "sales bulletin" may be the remedy you need.**

In fact, even if your traveling force is fresh and full of energy and sales are running at a high rate, you might still find it wise to stimulate operations with a well-edited bulletin. Money investment is low.

**A sales bulletin** is a fairly simple management tool—and a highly effective one. It is a "letter" or special paper prepared by top sales executives and mailed regularly to all salesmen in the field. It serves as a fast, dependable medium of communication between the home office and the scattered sales force. It serves too as a personal contact, and it can do a lot for the morale and working energy of your men "on the road."

The well-written bulletin contains a wealth of information, both business and personal, for the isolated salesman. Business information and instructions may be balanced by personal news, office "gossip," and "human interest" material. Messages from top executives, price changes, package information, advertising reports, sales promotion reports, current industry news, home-office news—all are standard topics. Unique stories about salesmen overcoming customer resistance and successful sales promotions are especially effective.

**The values** of a sales bulletin were researched recently by the Sales Promotion Executives Association. Seventy-five members—including executives of Du Pont, White Motor, Avco, Socony Mobiloil, Trans-World Airlines—came up with these conclusions:

- A good bulletin bridges the gap between home office and the field. Salesmen get a feeling of participation and "belonging" to the company—plus quicker and better instructions, in many cases.
- A spirit of "teamwork" is developed. The result is a healthy competition to improve individual sales records. (Sales records, by the way, make excellent bulletin material.)
- Sales training is improved. A bulletin offers opportunity for the exchange of ideas on effective sales techniques. The best use of "selling tools" can be taught—everything from "fast pitch" to the use of slide-films.
- Special promotions are more easily handled by the home office. Salesmen can be brought quickly into a fast company-wide selling campaign. The tie-in and coordination between sales and advertising can be made clear.
- Sales are often increased through publication of up-to-date information on new-product applications and potential new markets.
- Company policy and progress are easily explained to the sales-force, with special emphasis on how salesmen will be affected. Plans for expansion—new sales territories, etc.—are easily "pushed."
- The volume of correspondence between the home office and sales force is cut way down—if the bulletin is fully packed with information needed in the field. The number of regular reports can often be reduced.

**Producing the bulletin** takes a bit of work and imagination on the part of its editor, but little money. Most material is usually written by the promotion manager or one of the sales executives, with the help of staff workers. Usually several people contribute items—top management, sales and advertising executives, personnel managers, purchasing agents and, probably most important of all, members of the sales force.

Cost per salesman per year, according to the members of SPEA, ranges from as little as 25 cents up to a high of $500. The average for the 75 companies surveyed was $11.64 for physical production of the bulletin. Hidden cost is the big item, of course—the time spent in writing the material.

Bulletins are produced either semi-monthly or weekly, by most companies surveyed. About half of them mail to the salesman's home, half to his branch office.

**Format is kept simple.** Three-quarters of the firms surveyed use the same format every issue. Eighty percent use letter-size for low paper cost and convenience in mailing. Most bulletins run one to four pages.

Production methods include: mimeograph (41% of the companies), multilith (23%), offset (18%), ditto (8%), letterpress (8%), Duplimat (2%).

About three-quarters of the firms handle production in their own offices; the rest use outside printing services.

## ▶ New

**A free automobile** with every appliance! That is the new sales slogan of a Birmingham, Alabama, retailer who is now selling refrigerators and other major home appliances at a record rate.

Mr. Justice Stroud saw old autos all over town—mostly in used-car-dealers' outdoor lots. They were battered and worn from years of service. They commanded little respect, even in the used-car market. But they gave Mr. Stroud an idea. Why not use these aged autos to promote the sale of new refrigerators, home food freezers, and electric stoves?

So Stroud bought cars—at an average cost of $61, low enough to give with each $300 sale.

Result: Stroud's retail appliance business jumped 700% in a few days.

Digested from ELECTRICAL MERCHANDISING, Oct, p66

# USSR: 25-Year Lag

**Distribution in Russia is outmoded. The consumer, long forgotten, may be given a voice.**

Digested from INDUSTRIAL DISTRIBUTION, Oct, p82

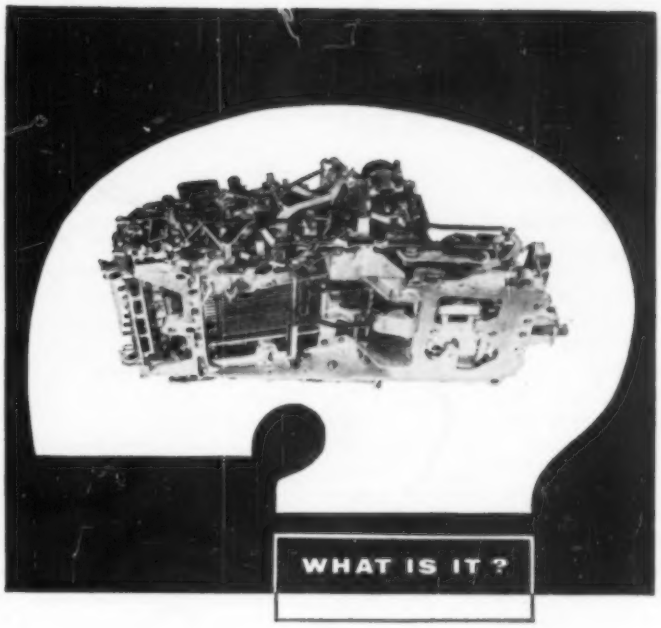
The Russians have neglected the arts of marketing—retailing and wholesaling—for so long that "their problems of modernization are monumental." That was the expression used by an American marketing expert who recently returned from a close look at several Russian cities.

**The expert** was Wroe Alderson, a noted marketing consultant of Philadelphia who arrived at these conclusions about Russia:

- The government is making a strong effort to supply a greater volume of consumer goods to the public.
- The government realizes that it must greatly revise its retailing and wholesaling facilities and, at least, has made a start toward modernization.
- The philosophy behind marketing is changing, as well as some of the outward practices. Among other factors, the Russians in authority are beginning to realize that prosperity in the U. S. is built on marketing methods as much as it is on techniques of production.

**Inefficiency**, at present, dominates the Russian attempts at distribution. For example, instead of clustering in a compact and convenient area, Russian department stores and apparel stores are usually scattered over many blocks. There is no logical pattern of location. Consumer conveniences have been forgotten. City planning, too, has ignored the consumer and has taken little account of the future needs of trade.

**Most critical problems** of Soviet marketing arise in supplying the urban demand for food. State food stores supply packaged goods but are unable to meet the demand for fresh products. The open peasants' markets supply the food, but at prices from two to five times the "fixed" prices in the under-stocked state-owned stores.


**A** sells by the piece,
**B** sells by the lot,
**C** sells **A** and **B**
—what do **A, B, C** agree on?

"A" is a retailer, "B" is a wholesaler and "C" is a manufacturer. The subject on which they agree is the Remington Rand "99" Fully Automatic Printing Calculator. A rather appropriate name, at that! It gives you some idea of the many uses to which you can put this easy-to-operate mechanical prodigy! The "99" multiplies, divides, adds and subtracts with lightning speed – and still finds time to give you printed proof of its accuracy every step of the way! Whether you are a retailer, wholesaler or manufacturer – the "99" will prove to be an investment in business efficiency!

•

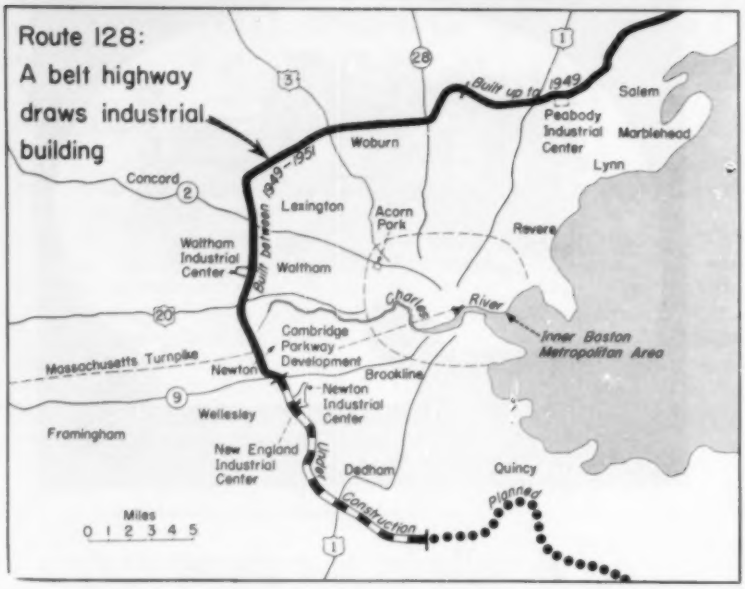
*See your telephone directory for Sales and Service Offices in Algeria, Argentina, Belgium, Brazil, Burma, Canada, Ceylon, Chile, Colombia, Cuba, Federation of Malaya, France, Germany, Holland, India, Italy, Japan, Mexico, New Zealand, Norway, Pakistan, Peru, Singapore, Sweden, Switzerland, United Kingdom, Uruguay and Venezuela. In all other countries contact your local representative.*

**Here are just a few of the jobs a "99" can do – BETTER!**

- Balance sheet analysis
- Billing
- Payroll
- Prorating overhead
- Sales statistics
- Cost accounting
- Mark-ups, mark-downs
- Accounts payable
- Inventory

**Remington Rand**
DIVISION OF SPERRY RAND CORPORATION

Dept. 9211, International Div., 315 Fourth Ave., N. Y. 10, U. S. A.




Map shows a classic example of a belt highway circling a metropolitan area. Along its route, a "package developer" saw the possibilities for light industrial plants

# Highway Brings Industry to Suburbs

Digested from ENGINEERING NEWS-RECORD, Oct 13, p45

In Massachusetts, contractors are gradually extending an expressway around the city of Boston. Called Route 128 (see map), it is usually regarded by highway engineers as the classic example of what a belt expressway around a metropolitan area can do for industrial development in the suburbs.

Soon after World War II, plans were made to extend the new Route 128 from the initial segment north of Boston right around the city. At the same time, it was becoming obvious in the Boston area, as elsewhere, that multistory factory buildings were obsolete in comparison with more efficient one-story factories. Industry in the Boston area had to have more space for expansion and, at the same time, had to cut costs.

**Into this situation** stepped an enterprising Boston firm, Cabot, Cabot & Forbes Co. Why not, it thought, pick out the best industrial sites along future Route 128, get them rezoned where necessary for light manufacturing, warehouses, laboratories, and office space? These sites could be developed as industrial districts, convenient to truck and rail transport near Boston and yet outside of its congestion and high tax rates. By doing this, they could offer prepared sites and a complete design-and-construction service. The client could either rent or buy.

**What CC&F does** is this: It provides all the technical and financial services necessary to put up its client's structure.

To a prospective client, the appeal of the package is that he knows in advance (in the form of a quoted annual rental if he wants to lease, or in the form of a lump-sum bid if he wants to buy) just what the full cost of his building will be. The executives of the client company, particularly if it is a small one, often know little about site location. Usually they know nothing about site development and sometimes not very much about buildings.

All this is taken care of in CC&F's package. The client can do his own site location, land purchase, and so on, if he wishes. Or he can leave it to the developer. There will be no unexpected extras. And there will be one firm to take responsibility.

**This formula is successful.** So far CC&F has taken the lead in district development along Route 128. There is nothing new about industrial districts. They have existed for years, usually developed at cost or less than cost by railroads interested in increasing on-line freight. CC&F, however, is unique in one respect. It has assembled all interested parties—financiers, architects, engineers, and contractors—into one firm. Thus all elements that go into an industrial development can be smoothly coordinated.

CC&F began development by carefully studying the land along the future route of 128. As might be expected, for one reason or another, a very high proportion of the road frontage was unsuitable. But it found some good sites. One of the first projects was to assemble 46 acres of land for an industrial district in the Town of Newton, just off the future route. Since this area was already zoned industrial, one important and time-consuming step was eliminated.

**But there were many other steps.** Before the land was bought, its sub-soil conditions had to be checked. Next, it was necessary to be sure that a rail spur could be arranged for, and whether power, gas, water, sewage-disposal facilities, and drainage would be available. After the land was bought, it had to be graded, roads and utilities put in, sewers, storm drains, railroad track and sidings built. This involved a heavy investment, which CC&F partly financed by selling off profitably, at this time and later on, some of the small sites it owned along Route 128.

The Newton Industrial Center was to be a "garden-type" district. No industry could be admitted that gave off smoke or poisonous sewage. Factory buildings in general were to be one-story, conforming to an over-all plan. Setback rules were enforced. There was broad allowance for lawns and planting. Off-street loading was to be used wherever possible, and there was to be no open storage. CC&F's tenants at Newton include Sunshine Biscuit, John Sexton & Co., and Buick Div., General Motors Corp.—all with office-warehouse space.

**Here is how CC&F works** on an individual job: A team is set up, usually headed by one of the top executives. There is also a contact man, usually a specialist in the most important problem presented by the job, perhaps its financing, perhaps site location. Then there is a follow-up man, who checks the power company and other utilities, studies zoning requirements and many other details. One or two lawyers are also included. They are from an associated law firm, but on salary from CC&F.

Also on the team, of course, are a project manager from the engineering department, probably an assistant project manager, and draftsmen. And a construction superintendent to boss the work is included.

Some clients want to own their buildings, but most arrangements so far have been on a lease basis. If CC&F's client passes the credit test, the property can be mortgaged for a high percentage of value, with CC&F retaining an equity. Rental is set at a level that provides interest and amortization during the term of the lease.

**For an industrial company** there are a number of well-known reasons why renting may be better than owning. Instead of making a large initial investment, there is a definite rent cost over a long period. This is a tax-deductible expense and may be more than the depreciation that could be charged off if the building were owned. In effect, the tenant is borrowing long-term money. But the lease need not show up on his balance sheet.

The lease deal is perhaps not as useful to companies in industries where technology may change rapidly, requiring changes in plant. In the past, prospects have turned CC&F's bids down for that reason. But the firm can meet this objection by giving an option to buy.

**NEW INDUSTRIAL CENTER on Route 128 is advertised by CC&F sign**

# What to Do About Noise

Digested from ARCHITECTURAL RECORD, Sept, p229

The problem of acoustics in dwellings has grown more acute in the past few years because of several factors: more neighbors, more children, more household appliances and mechanical contrivances, more open planning, and more lightweight construction. Add to this the noise from automobiles, trucks, busses, and airplanes and you can see why the noise levels invading private domain have jumped.

How can these noises be reduced to tolerable levels? Actually all noises for all people cannot be eliminated. But this ultimate can be approached.

**In analyzing** the acoustics problems of a proposed dwelling, this is the procedure:

- Establish a criterion for tolerable background noise.
- Analyze the noise sources.
- Take necessary measures for control of noise sources to satisfy the criterion.

Temporary and seasonal factors are bound to have some effect on the degree of annoyance caused by noise sources.

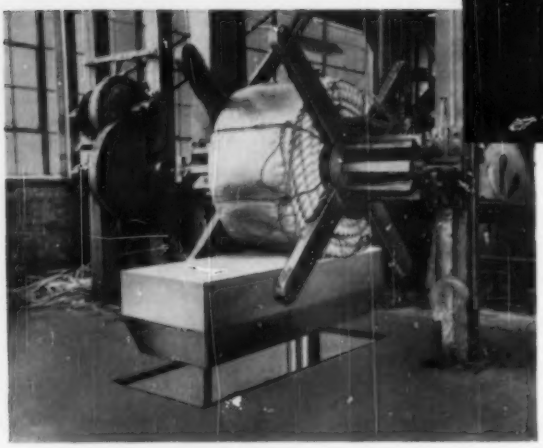
For example, the source that may determine a certain criterion might operate during the daytime hours when the occupants may not be at home. On the other hand, there may be residents who will stay in their homes during these hours (housewives, children) who are engaged in activities that do not necessarily require much noise isolation from external noise sources.

Still further, the repetitive character of the noise source must be considered. For example,, an occasional airplane a few times a day may be less annoying than a heavily trafficked highway. Additional factors that must be considered in establishing criteria are peak noise levels that can occur during a given day and the effect of previous experience with noise.

**Through attention** to many small details many acoustical im-

# GLOBE OiLIFT

## — makes a → tough job easy



## in this rope factory

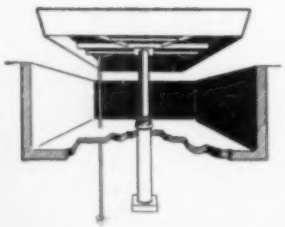
In this rope production plant, two fork lift trucks were formerly used to raise giant coils of manila rope, weighing from 3,000 to 8,000 lbs., many times daily. Because the trucks were required to stand by idly while workmen wrapped the rope for shipment and then removed the reel from the coil, much time was lost before the trucks could return to productive labor elsewhere in the plant.

Installation of a Globe OiLIFT greatly simplified this cumbersome operation, released the fork trucks from wasteful stand-by time, and speeded up the whole rope production process. This is just one example of how Globe OiLIFTS are bringing modern handling ease to countless lifting, loading, positioning, and materials handling jobs throughout the world.

Globe OiLIFTS are carried in stock in a variety of sizes and designs. Use the coupon below for complete information.

### EASY, LOW COST INSTALLATION ECONOMICAL OPERATION IMMEDIATE SHIPMENT

Power to raise OiLIFTS is derived from oil under mechanical or air pressure. Standard air compressor or Globe Oil Pump may be used as the power unit.



Standard OiLIFT platforms measure from 6' x 6' to 8' x 10' and raise to any level up to 58". Floor is non-skid steel plate. Beveled "toe guard" serves as safety feature. Non-rotating bar holds platform steady and guides its descent into floor recess. In "down" position, platform is flush with floor area.

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provements can be made. These are typical noise sources. You will find solutions to most of your noise problems in their details.

The bathroom in most multiple dwellings is the worst offender. To reduce the level of noisy water closets, consider the airborne and structure-borne paths of noise. Isolating the stack from the floor construction by means of a resilient support, secured if possible to a masonry wall, will reduce structure-borne vibration.

For controlling airborne sounds, you can eliminate the undercut doors and replace them with solid core doors, completely weatherstripped or at least tightly fitted. If these simple measures can be carried out, the noise from a bathroom will be greatly reduced. One other point regarding bathrooms: In vertical arrangements of apartment-house bathrooms, the rigid tie of the plumbing stack to the ceiling below can be an efficient sounding board for undesirable noises.

**Silent mercury light switches** are a very simple solution to the nocturnal clicks caused by noisy switches. If you cannot use the quiet type switch, at least keep the switch off party walls. The sound is actually magnified on the neighbor's side.

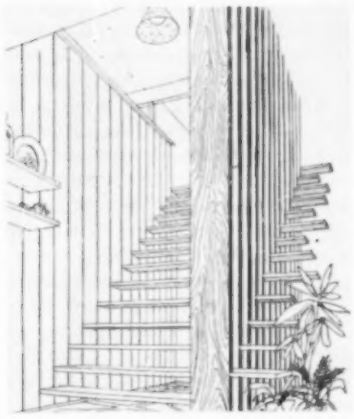
In heating and ventilating, forced warm-air systems present problems. A plenum lined with sound absorbing material in both the supply and return ductwork can do much to reduce the fan noise to a satisfactory level.

Basic planning of apartment buildings should have the attention needed to achieve additional noise isolation with a minimum of expense. There is also the problem of impact noises (foot-falls, pianos, and radios) being transmitted to the apartment below.

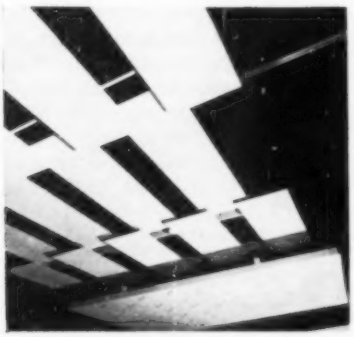
**Horizontal planning** can eliminate many of these problems at their sources. For example, walls between adjoining apartment units can be of heavy construction —the ideal method for isolating airborne sounds. In horizontal planning of dwelling units, the courtyard is significant. Parallel wall surfaces give rise to extremely annoying flutter echoes which intensify and prolong the noises.

# New Uses for Fir Plywood

Digested from AMERICAN BUILDER, Oct, p81



**GLAMORIZED BASEMENT STAIRS take the form of a completely open structure with treads of varying lengths supported on the outside ends by vertical fins or louvers.**



**LOWERED CEILING is a three-dimensional checkerboard hung on rods screwed into metal brackets on ceiling surface. Plywood panels alternate on two planes.**

**BARREL VAULT ROOF PANELS consist of thin sheets of plywood nailed and glued to end and middle framing members. Panels are curved inward at top and bottom.**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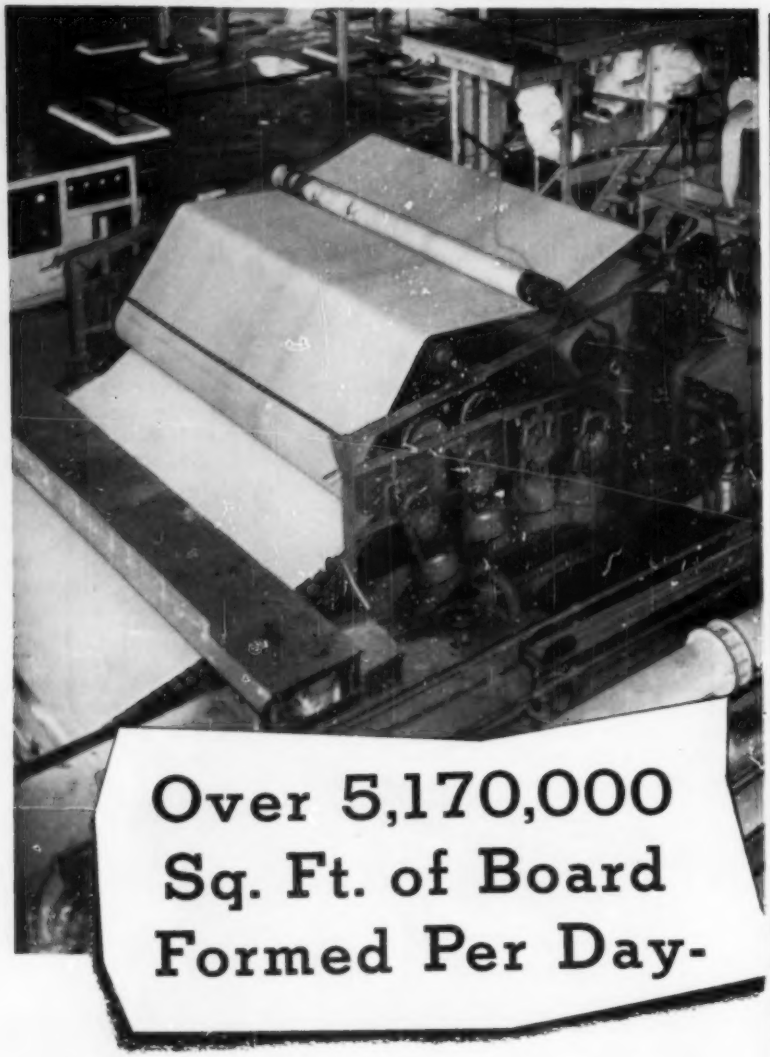


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## Reservoir Lining Reduces Leakage

Digested from ENGINEERING NEWS-RECORD, Oct 13, p33

Asphalt panels, ½ inch thick, line a 5-million-gallon reservoir in northern California to reduce leakage to a minimum. The material is an impervious, reinforced, molded asphalt lining similar to, but much heavier than, roofing felt. Weighing 3 pounds per square foot, it was supplied in 4x25-foot panels. Two types of water-tight joints were made with a cold-applied asphaltic mastic: (1) a lapped joint and (2) a butted joint sealed with an overlay strip.

Care in making the joints was essential to a leakproof job. But when properly made, the joints are stronger than the panel proper. Careful joint work was particularly important around the pedestals of roof columns. A tight seal was assured with an asphaltic sealing compound.

The ½-inch thickness of the asphalt panels includes layers of asphalt-impregnated felt near each side with layers of asphalt on each side. The interior is filled with a mixture of asphalt and inert fillers. The mastic sealer is an asphalt with asbestos fibers and inert fillers.

**New**

**A cast-iron clip** that costs only a few pennies is making it possible for builders to erect lightweight, reinforced concrete slabs with a speed and economy that are outstanding. Called the "K System," it was developed by structural engineer Edward S. Klausner.

The clip fits on the top flange of a lightweight steel joist and supports plywood forms between the top flanges of adjacent joists. This produces a deck strong enough to take all normal construction loads. Stripping the forms is simply a matter of snapping the brittle cast-iron clips from beneath with a sharp blow. The plywood form drops down and can be reused 20 times.

Digested from CONSTRUCTION METHODS & EQUIPMENT, Oct, p58

## YOU AND YOUR PERSONAL AFFAIRS

**How is your memory?** Have you ever had to resort to that old, old trick, "Let's see, how do you spell your name again?" Then you hear "J-o-n-e-s, Jones" or "G-o-m-e-z, Gomez," or "D-u-b-o-i-s, Dubois." At that embarrassing point, you will agree that a good memory is a valuable asset —socially, as well as in business.

**A good memory** is not something you must be born with. You can develop it. Here are some shortcuts that will help:

**Be sure you understand** what is said and its meaning. Concentrating on the meaning will help you remember more things better and easier. And make up your mind that you will remember. Concentrate actively. Practice being a good observer; look for details and don't be satisfied with a vague general impression.

**Use proved memory aids.** Link a fact to other ideas; the association fixes it in your mind. Group and number what you want to remember; if you know you want to do five things tomorrow morning, you will know if you miss any.

**If you study something thoroughly** today and have average memory, you will remember only 10% in a month. To prevent such disastrous losses, use the information you want to remember. If it's a man's name, call him by name whenever you talk to him. For other information, try follow-up reviews.

✦ ✦ ✦

**Tennyson said** of Marco Polo, "always hunting with a hungry heart." The same wanderlust applies equally well to a young American couple, the Shors, who followed Marco Polo's 13th Century route, first across the Gobi Desert and then from Venice through Turkey, Iran, and Afghanistan to the border of Red China.

**By foot and horse and yak, they traveled** the dangerous Wakhan corridor—the first westerners given permission to travel this ancient highway to China in over a hundred years. And, like Marco Polo, Jean Bowie Shor recorded what she saw and did. For armchair adventure over the top of the world, we heartily recommend her new book, "After You, Marco Polo" (McGraw-Hill Book Co.).

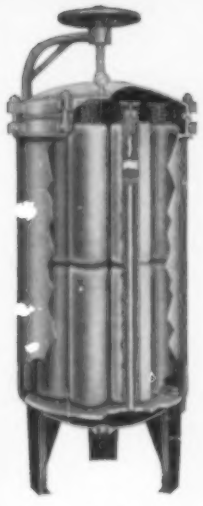
✦ ✦ ✦

**When you order or serve French champagne,** here are some points that may help you enjoy it. Champagne is a blended wine, so the question of "the best year" is not so important as with other wines.

Store champagne to avoid sudden temperature changes or long exposure to heat. Fragrance and flavor are destroyed if the champagne is too cold; 2 hours' refrigeration is enough. Too much "pop" means it's too warm. For best bouquet, fill glasses half to two-thirds full. And you can serve champagne any time—dry champagne as a cocktail or throughout the meal and the sweet with dessert.

*YOU has been compiled from American Business, Business Week, Factory Management & Maintenance, and other sources.*


108
Standard Models



Honan-Crane
Multi-Cartridge Filter

Why 108 models of the same basic filter? *Because each oil filter application creates individual problems.* Scores of variable factors are involved: type of oil, additives, oil viscosity and temperature, flow rate, capacity, space available, nature and degree of contamination, type of heating required, and many more. *All* of these factors must be considered in selecting the proper filtration unit.

Honan-Crane Multi-Cartridge Filters are available in 108 models, ten sizes, and with six different types of interchangeable cartridges, each designed to do a special filtering job. Thus, no matter how unusual or difficult the application, you get a filter exactly suited to your requirements . . . and readily adaptable to *changing* requirements.

The same wide choice of models is also offered in Honan-Crane Bulk Refill and Full Flow type Oil Filters. Custom filtration performance is *standard* with Honan-Crane.

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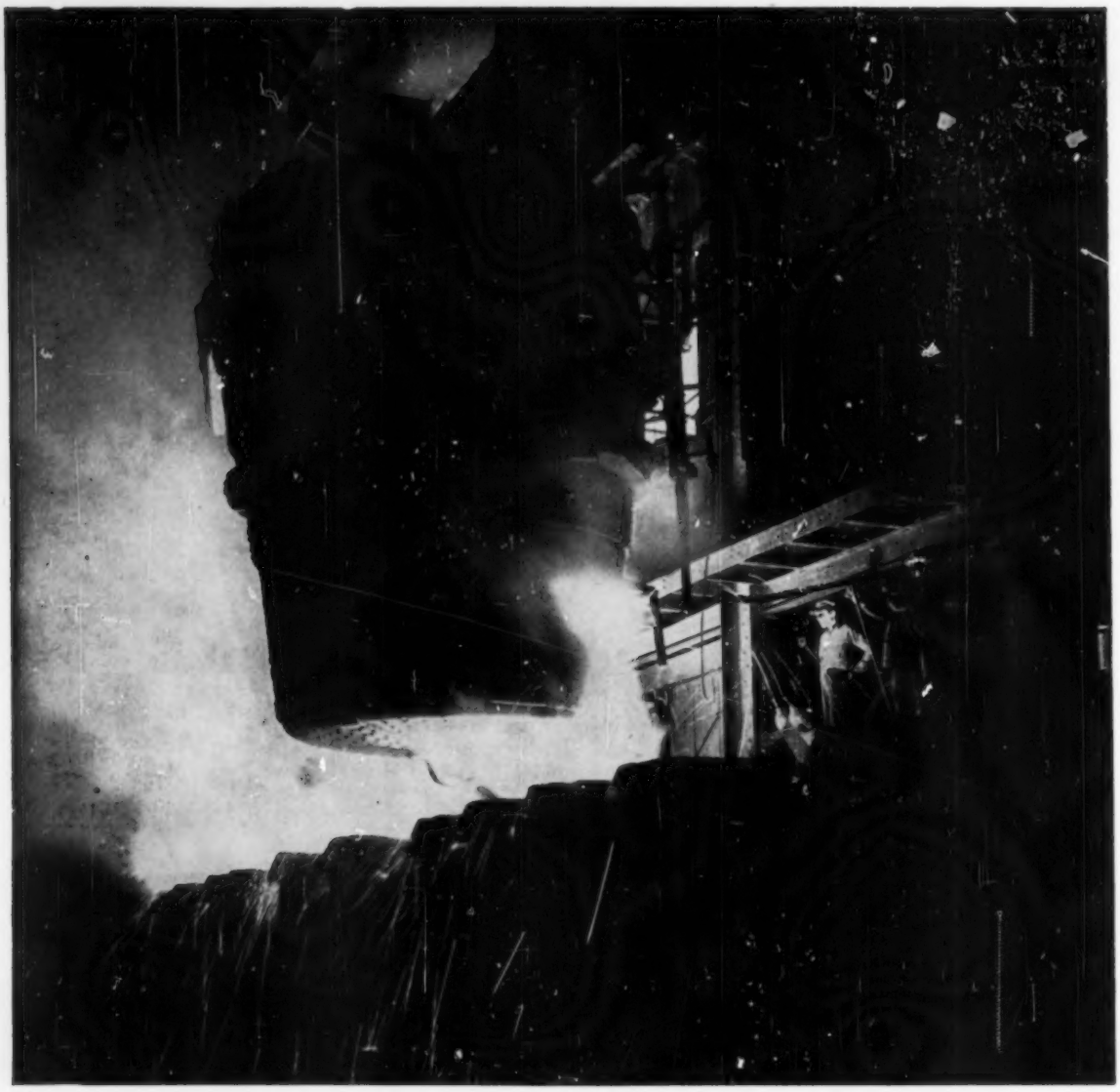

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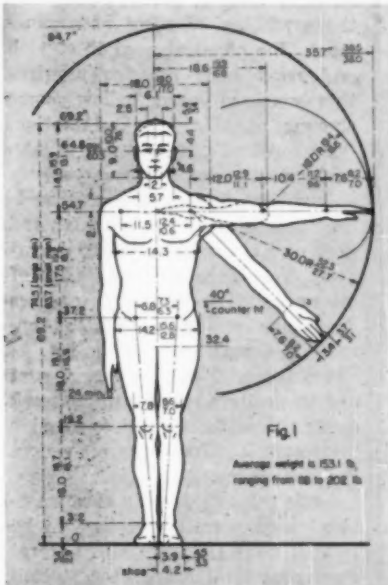

Fig. 1

HUMAN DIMENSIONS (Fig. 1) of the average adult male help designers build more comfortable, easier-operating products.

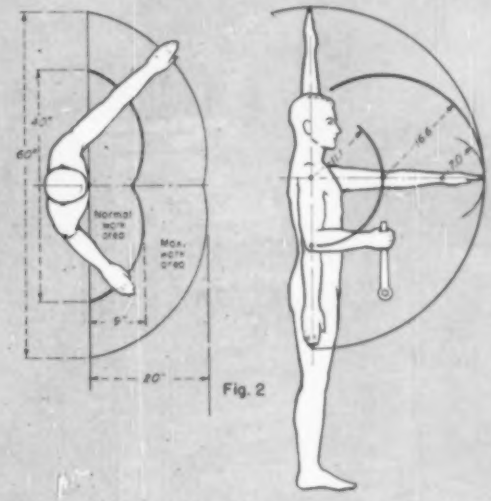

Fig. 2

WORKING AREA of a seated or standing operator depends on his arm length. Dimensions (Fig. 2) are based on a small-man's reach while sitting and standing.

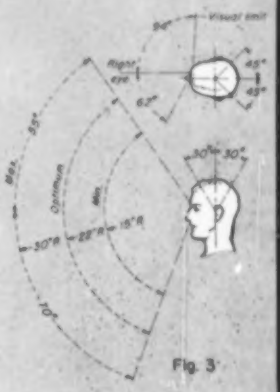

Fig. 3

VISIBILITY STUDIES (Fig. 3) must include consideration of size, color, lighting, and purpose of equipment. Where concentrated attention is necessary, effective visual areas are reduced.

# Make the Machine Fit the Man

Digested from PRODUCT ENGINEERING, Sept, p166

The good designer is always conscious of the man who will use the product he designs. Industrial designer Henry Dreyfuss, for one, bases his doctrine on the principal that "the object being worked on is going to be ridden in, sat upon, looked at, talked into, activated, operated, or in some other way used by people individually or en masse . . . If people are made safer, more comfortable, more eager to purchase, more efficient, or just plain happier by contact with the product, then the designer has succeeded."

Just how does the designer make the machine fit the man? The data he works with are human dimensions. Those shown in Fig. 1 have become the basic guide in the U. S. (People's dimensions may differ from country to country.) But these data should be used for general guidance only.

The designer must interpret and adapt the data to each specific problem. It would be unwise, for example, to accept a given chair height dimension as the basis for locating a shelf in front of a seated operator without full consideration of the construction of the chair cushion and how far it sinks when the operator sits down. Allowances also must be made for the tendency of a man to relax as he becomes tired.

The use of this type of information costs little, but it demands much thought and interpretation. In design of most machines—and other products, too—stress is placed on reach, vision, space-enclosure, seating and standing requirements.

• **Reach**—Hand or foot controls should be placed so that the operator will not be inconvenienced or fatigued in operating them. Normal limitations of reach (Fig. 2) should govern control location. Also, the duration, frequency, and sequence of reach motions must be considered to lessen the operator's fatigue.

When complicated, tedious, and tiring operations must be done for long periods of time, it may be desirable to have a seat that can tilt the operator's body slightly forward so as to increase his arm reach. Control areas may be arranged in an arc around the operator to coincide with his normal reach. This principle has been applied to control consoles, telephone switchboards, broadcast control equipment, and aircraft cockpits.

• **Vision**—If a product is to be handled, manipulated, or controlled, it must, as a rule, be seen. Some equipment will be scanned from either nearby or remote points. Other equipment will require close attention from the operator.

Proper location of those components requiring observation, such as instruments and work areas, can be done after an analysis covering (1) normal body sag and head tilt, (2) effect of lighting, (3) reflection and glare, (4) size of objects.

Visual control areas are generally located as shown in Fig. 3. Where very accurate observations are needed, figures and dials may be enlarged to accommodate those

The sensational *Bambino* model

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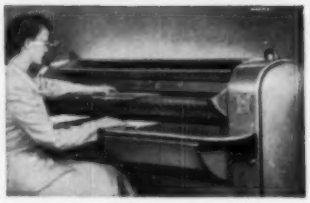

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people whose vision is subnormal.

• **Enclosed Space**—When a man works within a restricted space, he tires rapidly, partly because of the psychological effect of confinement. The physical need to stretch and relax body muscles requires that confined areas allow some amount of this type of motion.

In confined areas, such as aircraft cockpits, locomotive cabs, even automobiles, the surfaces surrounding the user may be irregular and present hazardous edges and corners. To reduce the possibility of injury, such edges and corners should be removed from the operator's normal area of motion.

• **Seating**—The operator's seat and its position relative to the work areas should be selected to provide maximum comfort, reach, vision, and convenience.

Sufficient clearance in the "knee-hole" area permits the legs to be relaxed from time to time. Lateral clearances let the operator stretch and relax. Shelf clearances, positioned with respect to seat height and arm rests, provide a comfortable supporting surface that does not present a "bumping" edge to the forearm.

If visual controls must be watched from a seated position, the product must be designed to favor good visibility. Design of equipment that must also be operated must be based on reach as well as vision requirements.

**Standing**—Visual requirements are almost identical for standing or seated operators. A standing operator, however, can reach farther as he can bend from the waist and at the knees. And he can move laterally.

The designer of equipment to be operated in a standing position may therefore place controls or instruments over a greater area. But they should be positioned for use by average or small men. The tall man can bend to reach or see an object, but the short man cannot increase his height or reach.

Often, it is desirable to locate controls so the operator can see over the top of the control structure to other equipment in the room. This may require that manual or visual control planes be sloped to give the required working area within proper reach-vision distances.

## Short-Takeoff Transport Ready for Production

Digested from AVIATION WEEK, Sept 26, p108

The Frye F.1 large-capacity, four-engine air transport being tailored as a "DC-3 replacement" is taking on final drawing-board form while its owners search for a contractor to manufacture the aircraft and, as importantly, for future customers.

The airplane has a slab-sided fuselage and a nose designed for easy cargo loading. The landing gear will have a single main strut coming down from the inboard nacelles and connecting with fuselage struts.

Frye Corp. plans to do only engineering and development, with F.1 production contracted to an outside company. It may be produced in Europe and possibly Latin America, in the company's own facilities, by arrangement with an existing manufacturer, or by license.

The F.1's main purpose is to take 8,000- to 10,000-pound payloads off the ground in less than 1,000 feet at a takeoff speed of less than 55 miles per hour and carry them some 250 miles.

It was initially designed for use in underdeveloped world areas where road and rail transportation facilities are scarce.

### New

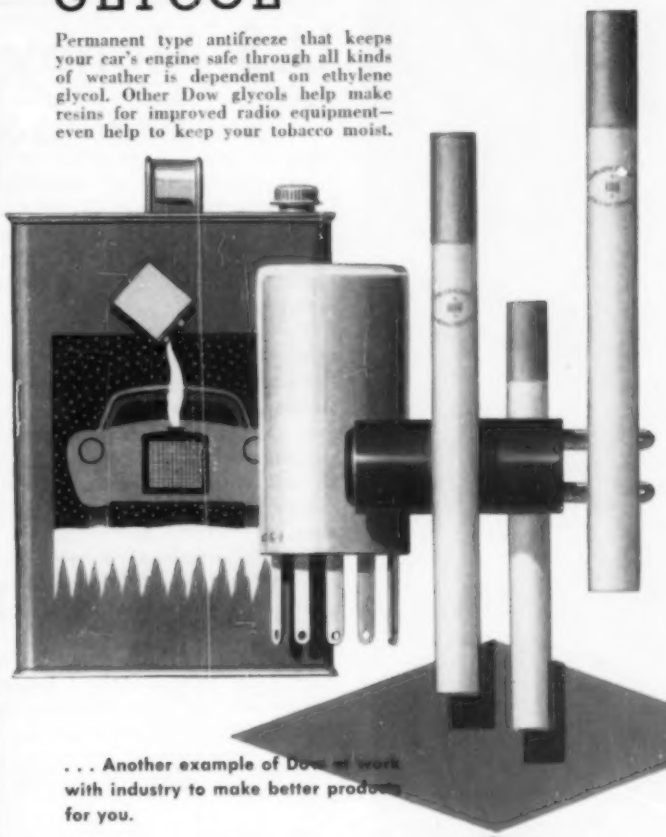
**Aluminum oxide film** only 0.0002-inch thick serves as insulation for aluminum foil or sheet wound spirally into coils. Developed by Reynolds Metals Co., the insulation is provided by a special anodizing process, making possible a new system of winding coils for use in transformers, solenoids, and some motors and generators. It is expected to reduce coil cost by possibly 50%.

Other advantages include reduction in size, weight, and increased ability to dissipate heat. Spiral winding of coils subjects the conductor insulation to turn voltage only. Normal layer insulation can be eliminated.

Digested from ELECTRICAL WORLD, Sept 26, p59


ETHYLENE GLYCOL

Permanent type antifreeze that keeps your car's engine safe through all kinds of weather is dependent on ethylene glycol. Other Dow glycols help make resins for improved radio equipment—even help to keep your tobacco moist.



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## ▶ FINANCE

# U.S. Money Goes Abroad

Digested from BUSINESS WEEK, Oct 8, p28

The time has come to add a new dimension to U. S. banking operations—the sharing of ownership in foreign enterprises by the purchase of stock shares. At least, that is the current opinion of most bankers and brokers in Wall Street.

New York's financial center is alive these days with much talk (as usual) and a surprising amount of action devoted to the fact that many Americans seem anxious to invest their money abroad. Wall Streeters are glad to handle the heavy overseas business.

**The international flurry** that has hit "the Street" is marked by these major developments, among others:

• New York's Kuhn, Loeb & Co. and First Boston Corp. joined hands recently with Warburg & Co., of London, to form a new $10-million international investment firm—Transoceanic Development Corp.

The concern is something new for Wall Street. It will buy ownership interests in overseas companies, other than Canadian. Its aim is to provide new capital for the expansion of mining, manufacturing and commercial enterprises in any country that presents "attractive investment opportunities."

Transoceanic's initial paid-in capital is $5-million—60% contributed by Americans and 40% by Europeans. The firm believes this amount is sufficient. It will not, itself, be making big dollar investments in overseas enterprises.

One of its projects, for example, calls for only a 3 to 5% investment by Transoceanic. The rest of the money will come from U. S. and European participants and their clients. Transoceanic will merely supply enough cash to get projects "off paper" and into action.

• Chase Bank, New York, is starting a similar operation intended to finance and develop new enterprises in all foreign countries, including Canada. A Canadian corporation already has been formed.

• Time, Inc., in cooperation with a New Orleans group, has organized a new company called Inter-American Capital Corp. The firm will devote itself exclusively to pushing U. S. investment in Latin America.

• Plans are brewing to extend the "mutual fund" idea into the foreign field. For example, the International Resources Fund, Inc., plans to float a stock issue through New York's Kidder, Peabody & Co.

• There is talk in Wall Street that before long several leading British and Continental corporations might sell a part of new stock issues in the New York market.

**Several strong factors** lie behind Wall Street's overseas activity. On the foreign side, there has been (1) the easing of the "cold war" tension; (2) the economic upsurge in Western Europe, which has brought a lowering of exchange restrictions; and (3) the eagerness of underdeveloped countries to speed development.

On the U. S. side, American investors have been looking for better money-making opportunities than Wall Street has been able to provide (until the new trend). Yields abroad, in London, for example, have been higher than in the U. S. Investor confidence among Americans interested in overseas enterprises has been higher, too.

**The enthusiasts** on Wall Street are highly optimistic, but not to the bursting point. They make no great claims for the future of U. S. investment abroad. All they are claiming is that a new dimension is being added to the financial picture.

**THE STEPS of the old U. S. Sub-Treasury are quiet now. The building is a museum. But Wall Street is busy and hurrying, as ever . . . making new plans.**

*How Westinghouse*

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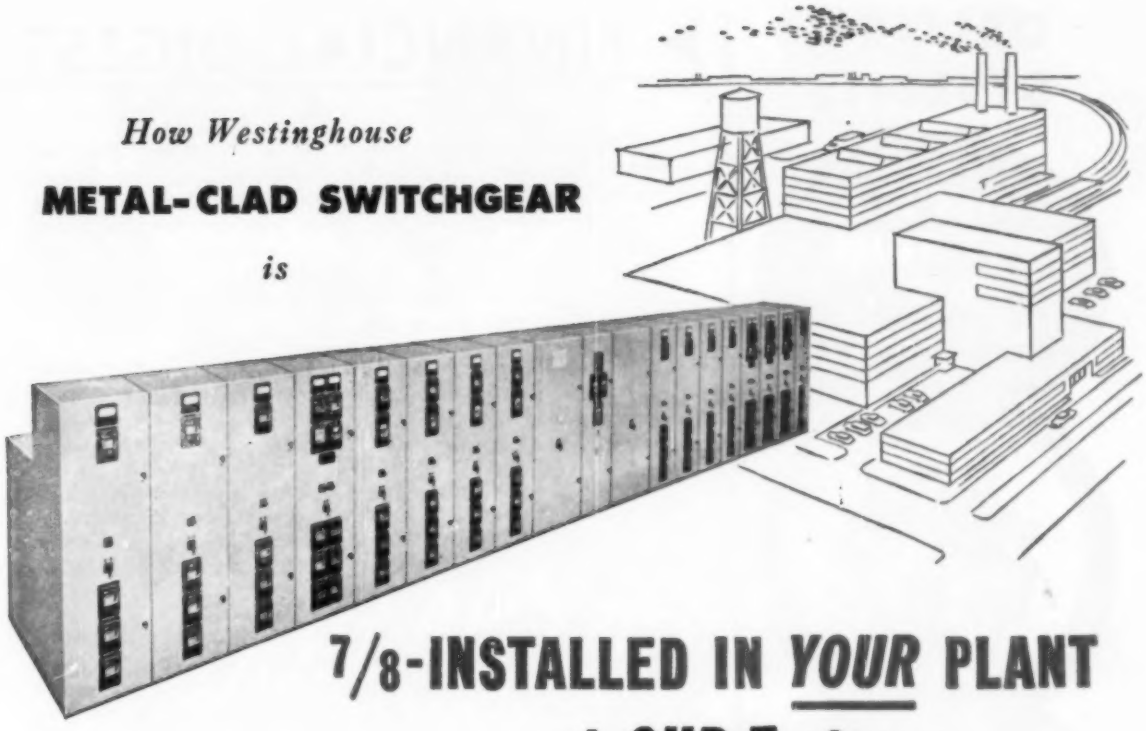

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# ▶ FINANCIAL DIGEST

**Western Europe is having dollar troubles.** Eighteen months ago some of the Continental nations and Britain began to encourage imports from the dollar area. Several countries—Finland, Norway, and Austria—became liberal about giving importers special permission to bring in dollar goods. Others—West Germany, the Netherlands, and Sweden—expanded their lists of "free" items that could be imported without restriction.

**The result: a large and growing "dollar gap."** Western Europe has imported more and more from dollar nations, while exports have remained at a fairly even level. The gap is now $200-million a month, double what it was a year ago.

**The future is cloudy.** Thus far, heavy dollar imports have acted as a stimulant to European production. The competitive position of Europe's industry actually has been improved. Cheaper imports, too, have tended to hold down inflation.

**But this picture could change—quickly and drastically.** If the large current demand for goods in Europe were to slacken, competitors could be hit hard by the easy import of dollar goods. What is needed now, according to the Economic Commission for Europe, is a "cautious approach" to the handling of all future imports. "Difficulties lie ahead," says ECE.

✦ ✦ ✦

**Latin America is getting more Export-Import Bank money.** Six of the first ten loans granted by the Bank under its new "liberal" policy went to Latin countries. The loans were made to importers in Columbia, Mexico, Peru, and Venezuela.

**The Bank has established 120 credit lines** to date in an attempt to push its "export insurance" plan. But there has been a slow follow-through on actual lending. Only 19 loans against the 120 lines have been approved so far. Their total: a comparatively low $3.3-million.

**Meantime, the American Overseas Finance Corp. is busy.** AOFC, the new private lender, was set up by five leading American banks to provide medium-term credit to buyers outside the U.S. Financing covers capital goods only (see Financial Digest, Aug, '55). The new firm already has made 15 loans amounting to several million dollars. For AOFC information, ask your American exporter.

✦ ✦ ✦

**A new idea in consumer lending** is being tried by the First National Bank of Boston. Instead of cash, the borrower gets a checking account—a "floating" fund on which he can draw checks. He pays nothing to open the account; but once he starts writing checks, it costs him 1% per month on the average balance, plus a 25-cent service charge for each check. He pays principal and interest in equal monthly installments.

*Financial Digest, compiled from various sources, analyzes current financial trends and underlying factors.*

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# ▶ NEW PRODUCTS

## Single Mast on New Fork Truck Increases Visibility and Operating Speed

Proving-ground tests indicate the new Monomast lift truck will work faster than conventional units. The unit gives the operator a clear, unobstructed view of both forks and load, permitting faster operating speed and reducing driver fatigue. Additional operating advantages offered are faster maneuverability, faster approach, more accurate load placing, safer load handling.

The unique upright assembly consists of two box-type sections, one telescoping within the other. Total weight of the Monomast upright is about the same as standard-type assemblies, but its tubular design is claimed to be stronger than comparable models.

Hoist speed is increased 15% in the new design. Load raising speed is now 58 feet per minute with a corresponding increase in load lowering speed. Slight horizontal carriage flotation permits the lift truck to angle back out of tight positions after load depositing.

A piston-type cylinder with a new self-adjusting packing gland minimizes possibility of oil leakage and extends packing life. Life of cylinder and packing is also extended by full protection from dirt and mechanical damage.

All standard hydraulic attachments can be mounted on the attachment carriage; non-hydraulic attachments are also available. The Monomast upright mounting is conventional and can be installed on 3,000- and 4,000-pound Hyster models UC-30 and YC-40 without alteration. **(Hyster Co., 1800 N. Adams St., Peoria 1, Ill.)**

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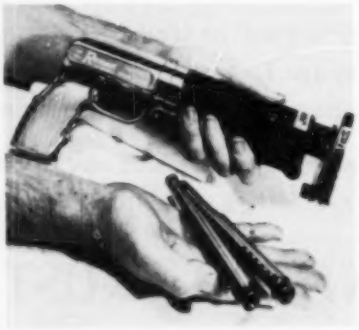

### On-the-Job Fastener

The Duo-Jobmaster, a powder-actuated tool, simplifies on-the-job fastening of more than 90% of all the ordinary fastening jobs needed in construction. The main feature of the new tool is that it can be used for either a ⅜-inch stud or a ¼-inch stud with only a simple change of the barrel.

Safety on the job is aided by the angle-fire control of the Duo-Jobmaster. The tool will not fire unless the base plate is flush with the surface. **(Olin Mathieson Chemical Corp., 460 Park Ave., New York 22, N. Y.)**

●

### Streamlined Tractors

Dynamic streamlining and major advances in engineering are features of the new models 335 (30 horsepower) and 445 (40 horsepower) tractors. Ten distinct forward speeds from 1.4 to 16 miles per hour are provided by Magna-Power. In each of five forward gears and in reverse, the operator is able to switch, without shifting gears or loss of torque, to either of two speeds when more or less power is called for.

Power steering and hydraulically-controlled implements provide greater efficiency and ease of operation. The 445 operates on gasoline, liquefied-petroleum gas, diesel and tractor fuels. The 335 is a gasoline model. **(Minneapolis-Moline Co., Box 1050, Minneapolis 1, Minn.)**

●

### Rotary Tablet Press

A completely new 10-ton high-speed rotary tablet machine, model 533, produces up to 2,500 tablets per minute and is capable of an even higher output. The new press can be utilized to handle a variety of industrial compacting operations, including ceramics, powder metals, and plastics preforming.

The press comes in two versions: one with 33 stations making tablets up to a maximum diameter of 1⅛ inches and 1¼ inches depth of fill; the other with 27 stations making tablets up to a maximum diameter of 1⅜ inches and 1½ inches depth of fill. **(F. J. Stokes Machine Co., Inc., 5500 Tabor Road, Philadelphia 20, Pa.)**

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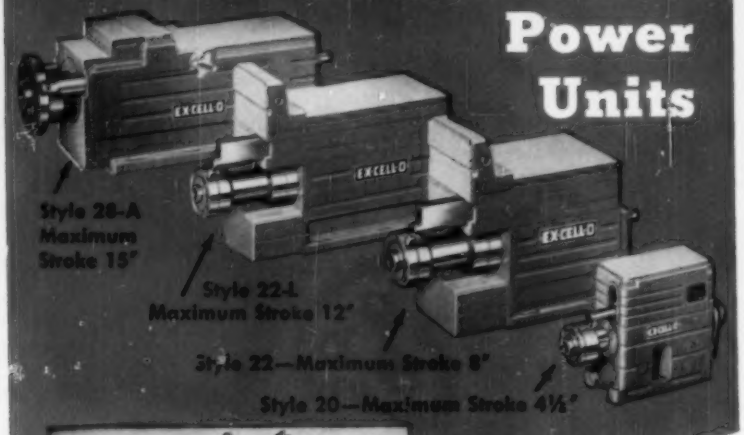
# Ex-Cell-O Quill-Type Hydraulic Power Units



This special machine with automatic indexing fixture core-drills piston pin holes and drills angular oil holes. It uses six Ex-Cell-O Power Units (shown without belt guards) operated from a central push-button station.

Ex-Cell-O Power Units feed and rotate tools in easily controlled automatic cycles. A single tool can be held in the unit spindle or a multiple head can be bolted to the quill flange. The Units are used in low-cost, high-production machines for such operations as drilling, reaming, counterboring and spot-facing. A typical machine consists essentially of a plain base, a work-holding fixture and one or more power units.

Ex-Cell-O Units are self-contained and compact; can be mounted horizontally, vertically with the spindle nose down, or at any angle between these positions. For details about these units write, or cable Ex-Cell-O in Detroit.

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## High-Speed Accounting

The Underwood Simplamatic is an accounting machine built so that any typist can perform all the basic bookkeeping functions at high speeds.

The machine is controlled by a "mechanical brain" that remembers instructions and performs them instantly, posting after posting. The control unit can be changed from one accounting procedure to another in a matter of seconds. **(Underwood Corp., 1 Park Ave., New York 16, N. Y.)**

•

## Metallurgical Microscope

Model DMETR metallurgical microscope has many new design features, including an over-sized focusing stage with interchangeable stage plates. A fine-adjustment focusing knob located at table level permits operators to work with their arms in a relaxed position.

The microscope is equipped with Tri-vert Illuminator (jutting from side), which permits dark-field, light-field and polarized-light studies of metal specimens. **(Bausch & Lomb Optical Co., 635 St. Paul St., Rochester, N. Y.)**

## NEW PRODUCT BRIEFS

**Straddle Carrier**—New straddle carrier has four forks, two on each side, which swing in at right angles and meet in the center to form two arms under the load. No bolsters are necessary. The carrier has a capacity of 20,000 pounds. **(Clark Equipment Co., Benton Harbor, Mich.)**

•

**New Jeep**—Model CJ-6 101-inch wheelbase Jeep has a half-ton load capacity and is powered by a four-cylinder, 75-horsepower F-head Hurricane engine. Four-wheel drive is standard equipment. **(Willys Motors, Inc., Toledo 1, Ohio)**

•

**Circular Sawing Machine**—"Barson" metal-cutting circular sawing machine is designed for exact straight and miter cuts. Two sizes cut up to 2½ and 3½ inches in diameter. The machine is easily portable. **(Wandsbeker Werkzeug-Gesellschaft, (24a) Hamburg-Wandsbek, Konigsreihe 3, Germany)**

•

**Milling Machines**—New line of Dial-Type milling machines have speeds ranging from 18 to 1,800 revolutions per minute. Push buttons reduce operating effort. The machine operates on light metals as well as the newer and tougher alloys. **(Cincinnati Milling Machine Co., Cincinnati 9, Ohio)**

•

**Metalworking Lathe**—Long-bed lathe offers a 5-foot bed (center-to-center distance: 36 inches). Other features include drive selector with a choice between loose and locked spindle and direct or gear drive; variable speed drive. **(Rockwell Mfg. Co., 443 N. Lexington Ave., Pittsburgh 8, Pa.)**

•

**Electric Screwdriver**—Newly designed electric screwdriver operates with one hand control, leaving the other hand free. An instant start-stop control on the switch insures safe handling. **(Mall Tool Co., 7725 S. Chicago Ave., Chicago 19, Ill.)**


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# NEW COMPONENTS

## Material Insulates Piping and Vessels; Little Shrinkage Occurs at 1800°F.

Kaylo-20, a new hydrous calcium silicate product used primarily as covering for pipes and vessels, has the unique advantage of expanding slightly up to 1100°F. Completely immersed in a test furnace, at 1800°F., shrinkage is limited to about 1½ per cent.

This higher-temperature insulation, developed after several years of research and experimentation, approaches the refractory range. It meets the requirements of the chemical, power and petroleum industries where increasingly high temperatures are encountered.

Kaylo hydrous calcium silicate has been used widely as covering for autoclaves, boilers, breechings, chilling pits, condensers, dryers, evaporators, furnaces, heat exchangers, hot-air ducts, kilns, glass-annealing furnaces, locomotives, precipitators, process systems, steam lines, tanks, turbines, and vessels.

In addition to its heat-control properties, Kaylo insulation combines these advantages: It is light in weight (11 pounds per cubic foot). Is has enduring strength (under compression, 150 pounds per square inch). It is insoluble in water and, when dry, regains its original thermal efficiency and strength without shrinking or warping. Kaylo insulation is easily cut or sawed, making it adaptable to unconventional surfaces.

The pipe insulation is produced in thicknesses and diameters for pipe sizes from ½ to 39 inches. Outside diameters correspond to those of standard pipes, assuring proper fit and permitting nesting when necessary.

The block is made 36 inches long, in standard widths up to 18 inches. It is manufactured in thicknesses up to 3 inches. **(Owens-Illinois Inter-American Corp., Toledo, Ohio.)**

●

### Unit Transfers Flour

For the first time, commercial bakeries remote from flour milling and distributing centers and without their own rail sidings can enjoy the savings and other advantages of bulk flour delivery. The Fuller Transfer Unit, just introduced, pneumatically transfers flour or other bulk loads from General American Airslide railroad cars to Airslide bulk vans or to storage bins and silos.

Portability is an outstanding feature of the unit. One man can pull and maneuver it easily. Of compact construction, the unit is only 10 feet long and has a maximum width of 40 inches. Total weight is 700 pounds. **(General American Transportation Corp., 380 Madison Ave., New York, N. Y.)**

### Masonry Blades

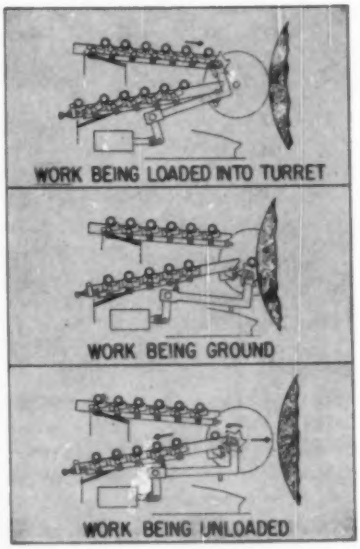
The "Niagara" line of masonry blades provides contracting and building trades and industrial users with blades that will cut all types of brick, concrete products, stone, tile and non-metallic pipe, as well as asbestos, cement, gypsum, Transite, Masonite, and Celotex.

Blades can be easily selected for cutting operations by their simple numerical coding system. **(The Carborundum Co., Niagara Falls, N. Y.)**

●

### Automatic Loading Device

This automatic loading attachment for cylindrical grinders loads work pieces between centers and removes them when ground. With variations to suit conditions it can be adapted to a wide variety of small parts that can be rolled by gravity on inclined rails, and permits an operator to attend a battery of machines.




The device is of the turret type, supporting the work near both ends.

A number of work pieces may be placed on the loading rails by the operator or fed to the loader from a suitably placed conveyor. Latches placed along the loading rails separate the parts and op-

erate to release a single piece at a time to the turret. Latches along the unloading rails automatically accept and release one piece at a time, keeping the pieces separated and thus eliminating any chance of the finished surfaces being marred. **(Norton Behr-Manning Overseas, Inc., Worcester 6, Mass.)**

●

## NEW COMPONENT BRIEFS

**Cable Vulcanizer**—New cable vulcanizer makes quick on-the-job jacket repairs or replaces insulation and jacketing when splices are required. Aluminum molds cover most standard and many special cords and cables to 2 inches in diameter. The machine operates on alternating or direct current to 1,000 watts. **(Joy Mfg. Co., 350 Fifth Ave., New York, N. Y.)**

●

**Demineralizer**—The Mixed-Bed Demineralizer is a compact unit for small quantities of water, to 360 gallons per hour. It produces water of low total dissolved solids, low $CO_2$, low silica content, and low conductivity. Flow rate is 6 gallons per minute. **(Permutit Co., 330 W. 42nd St., New York 36, N. Y.)**

●

**Control Gage**—Air-O-Limit automatic machine-control gage provides for in-process gaging and automatic "feedback" corrections. It allows for step impulse changes to the machine controls for tool resetting to maintain tolerances. Rejects will cause machine to stop. **(Pratt & Whitney, Div. Niles-Bement-Pond Co., West Hartford 1, Conn.)**

●

**Intercommunication System**—The Dial-Phone intercommunication system is built around an unattended central switchboard through which each phone in network can be dialed directly. Provision is made for flipswitch communication with preselected personnel. It will handle 10 to 1,000 lines. **(RCA International, 30 Rockefeller Plaza, New York 20, N. Y.)**

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[SEAL] ELVA G. MAPLIN
(My Commission expires March 30, 1956)

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**Gear-Shaping Machine**—Bulletin contains complete information and specifications on the Type SRO high-speed, short-stroke gear-shaping machine.—Maschinenfabrik Lorenz Aktiengesellschaft, Ettlingen/Baden, Germany.

**Versatile Vehicle**—Booklets W-991-5 and W-992-5, available in English and Spanish, tell the story of the many useful tasks performed by the "Jeep" family of four-wheel-drive vehicles in public service.—Willys-Overland Export Corp., Toledo 1, Ohio.

**Friction Clutch**—The new improved friction clutch is especially suited for applications where increased speeds prohibit use of jaw clutches and where smooth, gradual pickup is required. It is described in book 2637.—Link Belt Co., 233 Broadway, New York 7, N. Y.

**Electronics** — Monthly bulletins, available in French and English, contain information on developments in electronics. Recent issues discuss klystrons and FM multicasting.—Rocke International Corp., 13 E. 40th St., New York 16, N. Y.)

**Air-line Lubricators**—The Oil-IR lubricators described in bulletin 4169 are made in sizes for use with the smallest hand-held air tools to the largest quarry-type drills. — Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.

**Diesel Crawler**—Complete information and specifications on the powerful new OC-12 tractor are given in bulletin A1040.—The Oliver Corp., 400 West Madison St., Chicago 6, Ill.

**Electric Plants**—Vol. 11, No. 1 of Power Points Digest is devoted entirely to the application of Onan air-cooled electric plants and engines in emergency service.—D. W. Onan & Sons Inc., Minneapolis 14, Minn.

**Forging Presses**—Complete information on high-speed forging presses, specially constructed for high production of impression die forgings from steel, aluminum, magnesium, copper, brass, and stainless alloys, is given in bulletin 75-C.—Ajax Mfg Co., Cleveland 17, Ohio.

**Cut Nails**—Bulletin lists, describes, and illustrates the various types of Labelle cut nails used to lay hardwood flooring and to anchor wood to building blocks.—Wheeling Corrugating Co., 1 Park Ave., New York, N. Y.

**Locomotives**—Bulletin 2005 describes six standard diesel-electric locomotives for general switching as well as for high-speed main-line freight service.—Baldwin-Lima-Hamilton Corp., Lima, Ohio.

**Vacuum-forming Thermoplastic**—Booklet lists advantages of vacuum-forming thermoplastic sheets and describes process equipment, mold design and preparation, production techniques, and methods of decorating and post-forming.—Monsanto Chemical Co., 1700 S. Second St., St. Louis 4, Mo.

**Air-release Valve**—Bulletin 1204 describes the functions of type AGFD automatic air-release valve for water, sewage, and industrial use.—Simplex Valve & Meter Co., 7 E. Orange St., Lancaster, Pa.

**Tractor Shovel**—The HD-56 tractor shovel, with 1¼-cubic yard standard bucket, is described in bulletin MS-456-654.—Allis-Chalmers Mfg. Co., Milwaukee 1. Wis.

**Electric Hoists**—Catalog DH133B describes the Wright line of Speedway Frame 1 and 1½ electric hoists in 500- to 4,000-pound capacities.—American Chain & Cable Co. Inc., 230 Park Ave., New York 17, N. Y.

**Roller Bearings**—Bulletin A-638 contains up-to-date technical information and list prices on the complete line of Dodge SC ball and Dodge-Timken roller bearings.—Dodge Mfg. Corp., Mishawaka, Ind.

**Industrial Mixers**—Bulletin R-1701-B1 explains the major aspects to be considered when buying large mixers for use in fertilizer, chemical, ceramic and industrial applications.—Worthington Corp., Harrison, N. J.

**Speed Drives**—Bulletin GET-2480 describes the operating characteristics and functions of ball piston hydraulic constant-speed drives.—Intl. General Electric Co., 570 Lexington Ave., New York 22, N. Y.

**Precipitator** — Complete information on Permutit's Precipitator, an efficient means of removing impurities from a liquid by precipitation, absorption, settling, and filtration, is given in bulletin 2204C.—Permutit Co., 330 W. 42nd St., New York 36, N. Y.

**Welding Machine** — New design features of the standard air-operated, single-phase EPDF Dial Feed Rotary Indexing welding unit are described in bulletin 319-12.—Sciaky Bros. Inc., 4915 W. 67th St., Chicago 38, Ill.

**Truck Equipment** — Complete information on Heiloader hydraulic elevating tailgates for all trucks (2,000- and 4,000-pound capacities) is given in bulletin BH-55100.—The Heil Co., 3026 W. Montana St., Milwaukee 1, Wis.

**Electric Heaters** —Bulletin 750 describes a wide range of Chromalox electric heaters designed for the heating of cleaning, pickling and plating solutions.—Edwin L. Weigand Co., 7500 Thomas Blvd., Pittsburgh 8, Pa.

**Photographic Reproduction** — All Kodagraph materials available for the preparation and reproduction of drawings and documents are described in bulletin F1-101.—Eastman Kodak Co., Rochester 4, N. Y.

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**McGraw-Hill Publishing Co., Inc.**
**330 W. 42nd St., New York 36, N. Y.**
*American Letter*
*American Machinist*
*Aviation Week*
*Business Education World*
*Business Week*
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*Metalworking Production (London)*
*National Petroleum News*
*Nucleonics*
*Petroleum Processing*
*Petroleum Week*
*Power*
*Product Engineering*
*Textile World*
*The American Automobile (Overseas Edition)*
*Today's Secretary*

**American Bankers Association**
**12 E. 36th St., New York 16, N. Y.**
*Banking*

**American Management Association**
**330 W. 42nd St., New York 36, N. Y.**
*Personnel*

**Bill Brothers Publishing Corp.**
**386 Fourth Ave., New York 16, N. Y.**
*Sales Management*

**Breskin Publications**
**575 Madison Ave., New York 22, N. Y.**
*Modern Packaging*
*Modern Plastics*

**Dartnell Publications, Inc.**
**4660 Ravenswood Ave., Chicago 40, Ill.**
*American Business*

**F. W. Dodge Corp.**
**191 W. 40th St., New York 18, N. Y.**
*Architectural Record*

**The Economist Newspaper, Ltd.,**
**22 Ryder St., London S.W. 1, England**
*The Economist (London)*

**Fritz Publications, Inc.**
**431 S. Dearborn St., Chicago 5, Ill.**
*The Paper Industry*

**Harvard University**
**Soldiers Field, Boston 63, Mass.**
*Harvard Business Review*

**Industrial Publications, Inc.**
**5 South Wabash Ave., Chicago 3, Ill.**
*Ceramic Industry*

**Petroleum Publishing Co.**
**211 S. Cheyenne Ave., Tulsa 1, Okla.**
*The Oil and Gas Journal*

**Simmons-Boardman Publishing Corp.**
**30 Church St., New York 17, N. Y.**
*American Builder*
*Marine Engineering*
*Railway Age*
*Railway Track and Structures*
*Railway Locomotive and Cars*
*Railway Signaling & Communications*

**Temple Press Ltd.**
**Bowling Green Lane, (London E. C. 1, England)**
*The British Motor Ship*

**Welding Engineer Publications, Inc.**
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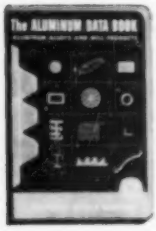

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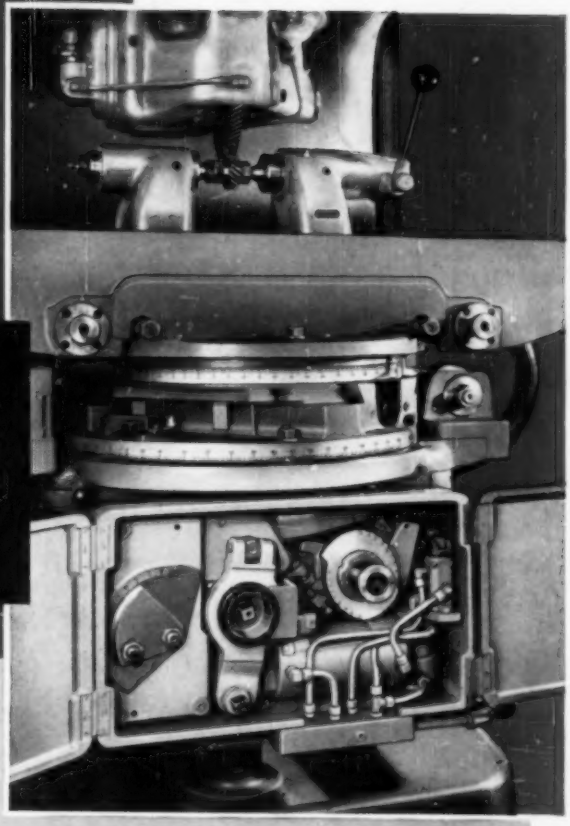

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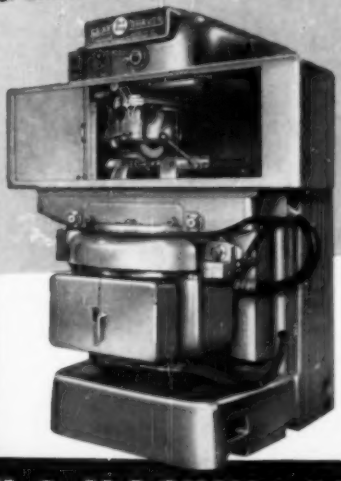

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